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Vol. XIX., No. 7 TORONTO, NOVEMBER, 1918 — $2.00 per Year

INDUSTRIAL CANADA

A Rock Amidst Shifting Sands

About future trade conditions—many Manufacturers you talk to "don't know"—everything seems shifting. But, this one thing the consistent advertiser does know—the name of his product has a deep-seated niche in the minds of the people. Come what may, go what will, the nationally known, nationally advertised product will stand high—"like a rock"—upon which a strong, permanent business fabric may stand.

We will be glad to meet Manufacturers who would appreciate a broad, even-minded, cold-blooded analysis of their business conditions, present and future, as they can be effected by good advertising.

J. J. GIBBONS, LIMITED

General Advertising Agents

MONTREAL — TORONTO — WINNIPEG

Cables—Gibjay, Toronto — Codes—ABC, 5th Edition

PUBLISHED BY THE CANADIAN MANUFACTURERS ASSOCIATION INCORPORATED.

HEAD OFFICE TORONTO · BRANCH OFFICES. MONTREAL, HAMILTON, WINNIPEG, VANCOUVER, HALIFAX, QUEBEC

CORALOX

(AN ELECTRIC FURNACE CORUNDUM)

REDUCES POLISHING COSTS

FREE TRIAL SAMPLE FURNISHED ON REQUEST

Made by

D. A. BREBNER LIMITED - Hamilton, Ont.

Sole Distributors for Canada

THE CANADIAN HANSON & VAN WINKLE COMPANY, Limited

TORONTO, ONTARIO

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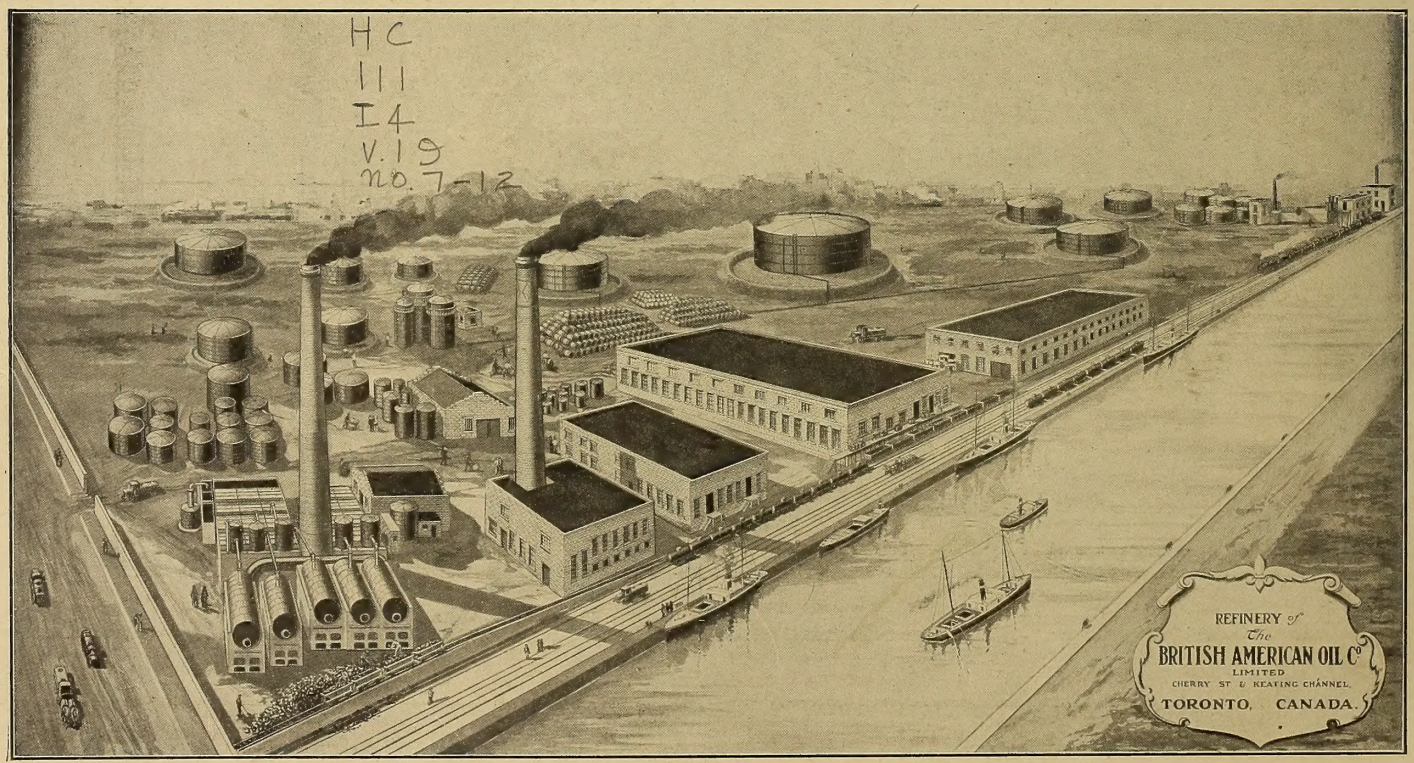
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John V. Gray Construction Co., Limited

General Contractors

"REAL SERVICE" 625 Confederation Life Bldg., Toronto

THE BRITISH AMERICAN OIL CO., LIMITED



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no.7-12

Head Office: ROYAL BANK BUILDING, TORONTO **Branches: Montreal, Ottawa, London, Windsor, Etc.**

EVERY man who has ever used Dart Union Pipe Couplings, and watched results knows that they are a mighty good investment.

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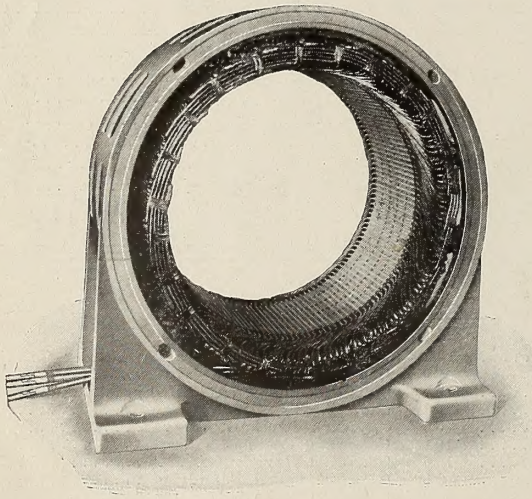
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Steady Motors Mean Steady Output



"THE DESIGN'S THE THING"

STUDY YOUR MOTOR DRIVE. IF YOU HAVEN'T TIME, LET US DO IT FOR YOU. THAT'S OUR BUSINESS.

THE CANADIAN CROCKER-WHEELER WOUND STATOR ILLUSTRATED GIVES OPEN SLOTS, MEANING SUPERIOR ENDURANCE, ALSO EASE AND SPEED IN REPAIRS, ALSO HEAVY INSULATION IN COILS, AFFORDING EXTRA PROTECTION AGAINST SHUTDOWNS.

CONSULTATION WITH US COSTS YOU NOTHING.
LET US SEND OUR LATEST BULLETIN, NO. 1000.

THE CANADIAN
CROCKER - WHEELER COMPANY
LIMITED

Head Office and Works: ST. CATHARINES

Manufacturers and Electrical Engineers

District Offices: TORONTO and MONTREAL

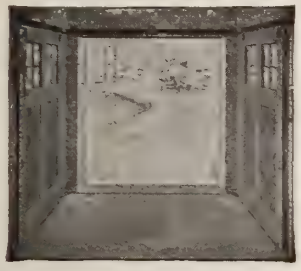


BULLDOG STEEL JOIST HANGERS

They never let go! Stronger than malleable. All sizes and styles for all kinds of work. Save space and time in erection.

GARAGE DOOR HARDWARE OF ALL KINDS FOR ANY PURPOSE

Angle Doors, Parallel Doors, etc. Special jobs receive the prompt attention of our engineering department. Let us know your requirements.





Put Your Trucks on The Ceiling!

The Modern Method of Factory Transportation

A Richards-Wilcox Carrier System—either I-Beam or Trolley—will pay for itself in one year on actual pay-roll saving, not to mention the increased efficiency. Occupies no floor space. Always ready for use. Operates easily, one man can handle 2,500 lbs. Trolley carriers made in sixteen styles and sizes for loads up to 2,500 lbs. For heavier loads use I-Beam Equipment.

Catalogs Upon Request

Richards-Wilcox Canadian Co. Ltd.

AURORA BOSTON NEW YORK CHICAGO London Ontario PHILADELPHIA MINNEAPOLIS SAN. FRANCISCO ST. LOUIS

"A hanger for any door that slides"

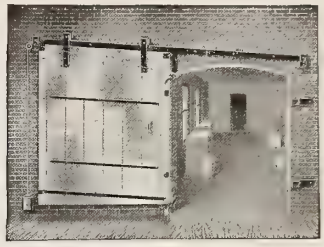
"R-W" TROLLEYS ARE BEST FOR ALL SLIDING DOORS



Specified by leading architects and engineers throughout Canada and the United States. "A hanger for any door that slides."

FIRE DOOR HARDWARE ALL STYLES WITH UNDERWRITERS' LABEL

Single or double—sliding or swinging. A fire door with labeled hardware is the most effective way of preventing fire from spreading.



One Practical Way to Save Coal

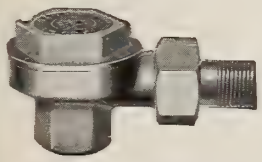
Coal waste usually advertises itself; that is why we repeat our warning to watch your heating system. You cannot use your coal economically when the heat it makes is wasted by inefficient traps or air valves.

We are willing to spend our time and money to see whether your heating system is toeing the mark for efficiency. Are you willing?

Get Rid of Noisy Heat-Wasting Valves!



The DUNHAM HEATING SERVICE



The Dunham Radiator Trap

Automatically removes the coal-wasting air and water from radiators; stops the pounding and hissing; quickly saves enough coal to pay for itself.

The Dunham Radiator Trap is only one element in the Dunham Heating Service—a service that stops coal-waste from boiler to return pipe. We shall be glad to give you facts and figures on installations that are now making remarkable fuel-saving records.

Are you willing to hear the facts?

C. A. DUNHAM COMPANY, Limited, Toronto, Ont.

Branch Offices: Halifax, Montreal, Ottawa, Winnipeg, Vancouver, Calgary.

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SMALL TOOLS

MILLING CUTTERS

In High Speed or Carbon Steel



Punch Dies

Plain Side Convex
Concave Angular
and
Special Forms

Special Inserted
Blade Cutters

Our tools are manufactured from the best materials procurable, by skilled workmen with most modern equipment.

QUALITY GUARANTEED

Prompt service is assured at our nearest store, where P. & W. Small Tools are stocked for immediate delivery.

Write for Our No. 9 Catalogue

PRATT & WHITNEY CO.
of Canada, Limited
Dundas - Ontario

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	B.C. Equipment Co.

BERTRAM MACHINE TOOLS

For Structural, Bridge and Shipbuilding Plants

Modern in design and built for heavy service, our line embraces a varied equipment of Punches, Shears, Bending and Straightening Rolls, Coping Machines, Rotary and Plate Planers.

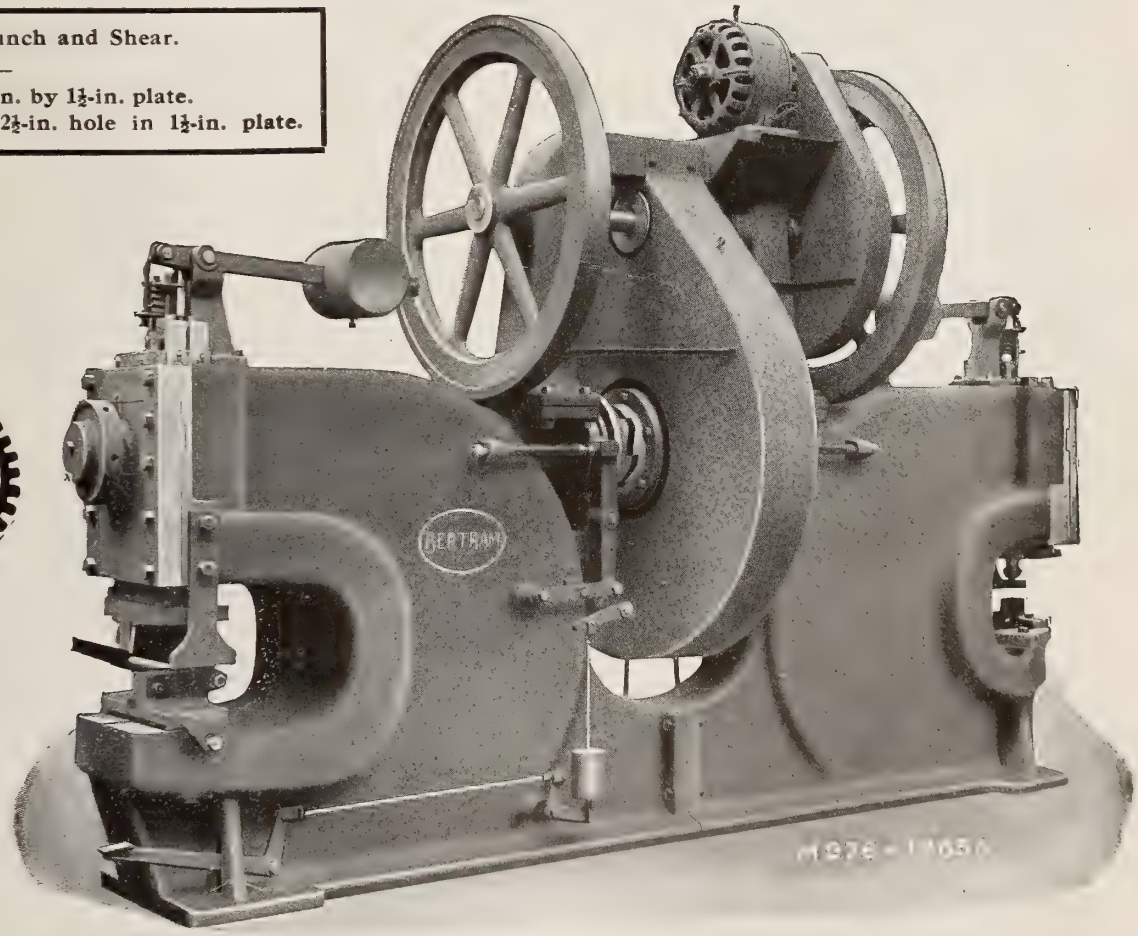
The assistance and advice of our engineers are yours for the asking.

THE JOHN BERTRAM & SONS CO., Limited

Dundas - Ontario - Canada

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	609 Bank of Ottawa Bldg.

Double Punch and Shear.
Capacity—
Shears 8-in. by 1½-in. plate.
Punches 2½-in. hole in 1½-in. plate.

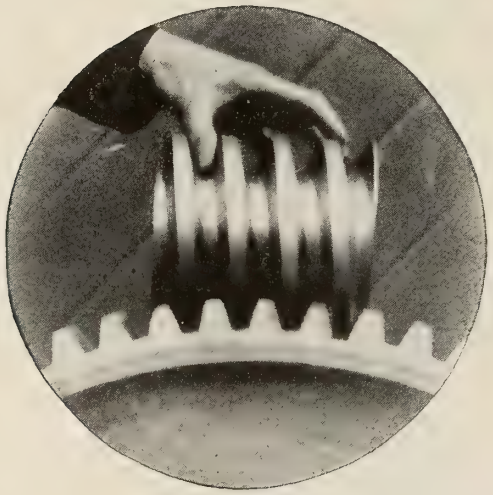


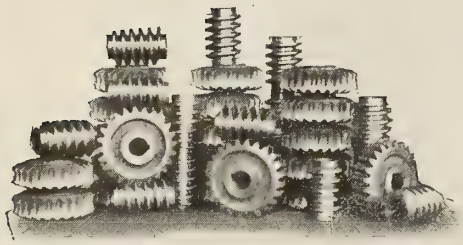
CUT GEARS

CUT GEARS

Worms and Worm Gears

Large Sizes or Small





Cut Accurately by Experts

Get Our Quotations

Hamilton Gear & Machine Co.

Van Horne Street - TORONTO

STELLITE

"Not Steel, but its Master"

The wonderful wearing qualities of Stellite are well demonstrated in its revolutionizing of the sand and shot blast.

Ordinarily a nozzle of steel or iron runs a few hours only on steady production. A Stellite nozzle lasts, under similar conditions, **10 days.** It can be cast to any shape, is not costly, and saves a lot of time and trouble.

Stellite can be adapted to your needs.

Think it over.

Made in Canada by

Deloro Smelting and Refining Co.
Limited

DELORO, ONTARIO

Toronto **Montreal**

Sturdy Equipment for Handling Bulk Materials



The TRUCK SHOVEL is operated as shown in the above illustration. One man can unload 20 tons per day without undue effort. We make them in two sizes—150 lbs. capacity and 200 lbs. capacity.

We also make a full line of Screening Tools. Ask for Catalog No. 11.



This is a FORWARD DUMP Wheelbarrow. It carries 300 lbs. of coal and is designed so that the load is evenly carried over the wheel. As we write this, one customer's order reaches us for one dozen.

THE GEO. B. MEADOWS
TORONTO WIRE, IRON & BRASS WORKS CO
LIMITED
TORONTO ——— CANADA

Craftsman Quality

DU PONT FABRIKOID



Stain-proof

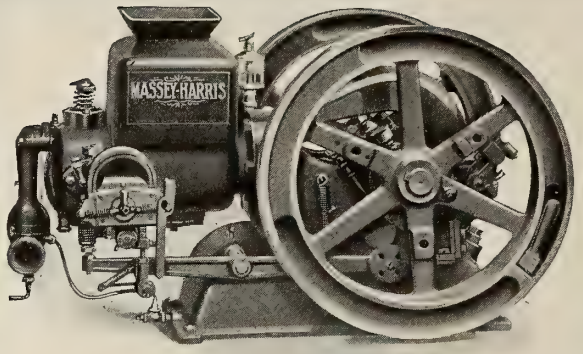
Liquids spilt on leather—even the best and most expensive grade of leather—sink into the pores and permanently stain it. Liquids spilt on Fabrikoid are simply wiped off with a damp cloth.

This is but one of the points of superiority of Fabrikoid. Craftsman Quality Fabrikoid costs no more than the best grades of leather, yet it wears and looks better and gives much better service than the best leather.

Keep it in stock for your customers. Have all furniture upholstered in Fabrikoid and give your customers the best on the market. Department Stores, Dry Goods Stores, Furniture Dealers, etc., write for details.

Dupont Fabrikoid Company

Factory and Sales Office: NEW TORONTO, Ont.



MASSEY-HARRIS ENGINES are good all the way through

¶ Every detail has been worked out with the greatest care—nothing has been slighted, either in the design or construction, and as a result they have won an enviable reputation for reliability and efficiency.

¶ One of these engines affords a convenient source of power, always ready, winter or summer, and costs nothing for keep when not in use.

¶ Made in sizes from 2 to 20 h.p., stationary, portable or semi-portable.

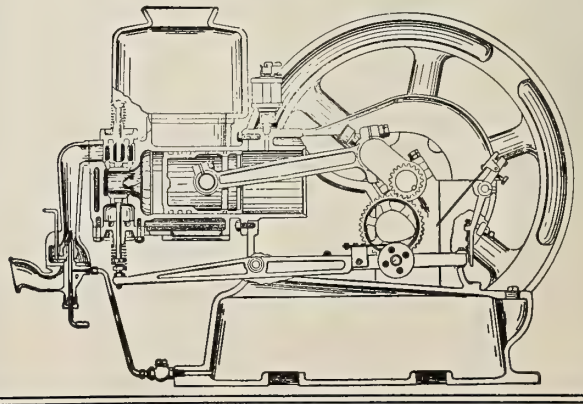
¶ Full information on request.

MASSEY-HARRIS COMPANY, LIMITED

HEAD OFFICES, TORONTO, CANADA

BRANCHES AT

Montreal Moncton Winnipeg Regina Saskatoon
Yorkton Swift Current Calgary Edmonton
Agencies Everywhere



Buy Victory Bonds

It is the least we can do to back up our boys at the front.

It is the safest investment in the world.

It will insure orders to our factories, employment to our labor and prosperity to Canada.

It will help shorten the war, save Canadian lives, and bring back our boys to their homes the sooner.

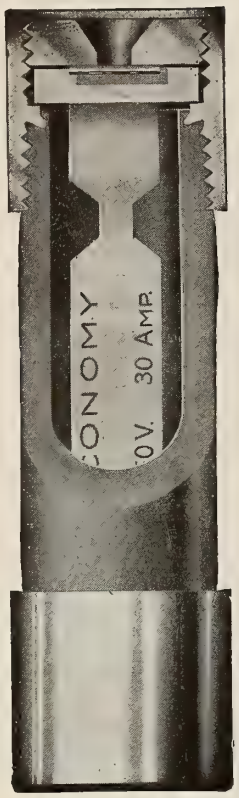
Lend the way they fight.
Buy Bonds to your utmost.

This space donated by

The Hydraulic Machinery Co.

Limited

Montreal Canada



ECONOMY renewable FUSES

Cut Annual Fuse Maintenance Cost 80%

Economy "Drop Out" Renewal Links are responsible for this saving.

A "Drop Out" Renewal Link restores a blown Economy Fuse to its original efficiency.

A sustained arc is impossible.

It's the work of a moment for even a novice to replace the link and renew the fuse.

First in its field—first in efficiency.

Order from your dealer. Write for catalogue 39

ECONOMY FUSE & MFG. CO.
OF CANADA, LTD.
UNITY BUILDING - - MONTREAL

Manufacturers in Canada of S. & C. High Potential Fuses to 150,000 volts.



McKINNON INDUSTRIES .ST CATHARINES ONTARIO CANADA

DO YOU KNOW

THAT of late years there have been decided improvements in producing MALLEABLE IRON CASTINGS?

THAT McKINNON MALLEABLE IRON CASTINGS have a tensile strength of 45,000 to 50,000 lbs. per square inch.

THAT because of the reliability of McKINNON MALLEABLE CASTINGS, we are called upon to serve manufacturers with whom quality comes first?

THAT McKINNON MALLEABLE is strong, ductile, easily machined and entirely satisfactory?

MAY WE EXPECT YOUR NEXT INQUIRY?

McKinnon Industries Limited
ST. CATHARINES, ONTARIO, CANADA

Where Jenkins Bros.' Valves are Made



Fig. 106



Factory and Head Office of
JENKINS BROS. LIMITED
Montreal, Canada



Fig. 141

Where plants are scientifically operated, valve value is measured by service rendered, and by yearly ***lack*** of up-keep cost.

If valves break down before other items of equipment, an injustice is done to the entire plant; because valves should last as long as good plant equipment. Good valves do.

Consider—40 per cent. of the Nation's Coal Pile is lost each year by power plants, from their coal investment through poor steam transmission, and from unnecessary labor costs.

JENKINS BROS.' VALVES will keep your plant running and save you money.

A Protection to the User

A steam user who installs Jenkins Bros.' Valves, can do so with the knowledge that he is protected by the maker against defects and imperfections. Our dealers have instructions to replace, without question, any imperfect or defective Jenkins Bros.' Valve returned to them.

Catalogue No. 8 sent free on request.

Head Office and Works
103 St. Remi St.
Montreal - Canada

JENKINS BROS.
Limited
Agencies in All the Principal Countries of the World

European Branch:
6 Great Queen St.
Kingsway
London, W.C. 2, Eng.



Houses built by Brown Brass and Copper Co. Ltd. at New Toronto

WORKINGMEN MUST HAVE GOOD HOMES

With the acute shortage of labor everywhere, the employer must consider the welfare of his help, if he is anxious to keep enough to operate his business.

Temporary homes, hastily constructed, may do for summer—they will not do for winter.

Workingmen demand warm, attractive houses, and they will seek the companies which provide such homes.

BUILD WITH

BISHOPRIC

STUCCO BOARD

and your housing problem is solved. "BISHOPRIC" is permanent, warm, dry, cosy, comfortable—and the most economical of all building material for inside and outside the house.

Write for samples, prices and full details.

THE BISHOPRIC WALL BOARD CO. LIMITED
529Z Bank St., Ottawa, Ont.

"BEATTY"



Material Handling Plant has back of it 55 years of successful experience.

HOISTING ENGINES
STEEL DERRICKS
DIPPER DREDGES
CLAMSHELL BUCKETS
DERRICK IRONS
SUCTION DREDGES
etc.

Write us for Catalogue 21 and Prices

M. BEATTY & SONS, Limited, WELLAND

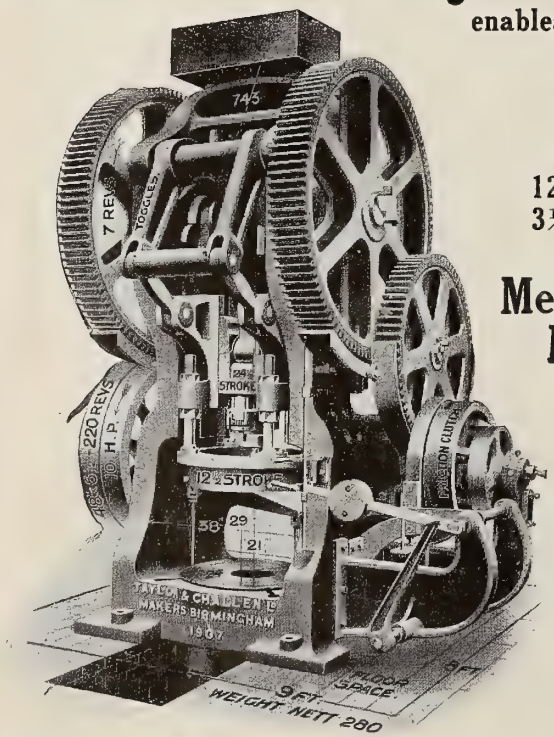
AGENTS:
H. E. Plant, 1790 St. James St., Montreal
R. Hamilton & Co., Vancouver
Kelley-Powell Ltd., Winnipeg
E. Leonard & Sons, St. John

Our Battery of Modern Presses

enables us to give prompt and satisfactory service for all classes of SHEET METAL

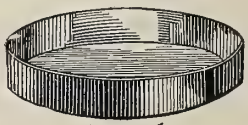
STAMPINGS

in sizes up to
12" Deep by 12" Diameter
3¼" Deep by 23" Diameter

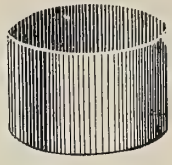




34" Diameter



23" x 3¼"



15" x 9½"



Metal Spinning
Electro Plating
Automatic Screw Machine Products

Specialists on Aeroplane parts and all other high standard metal parts.

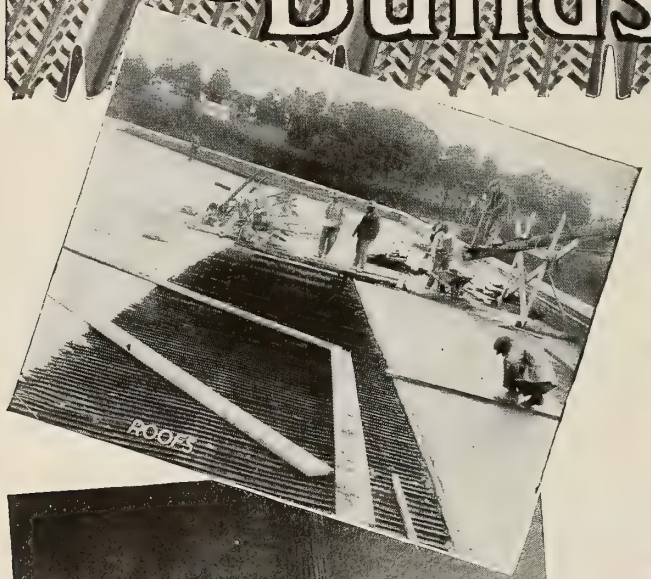
Ask for our estimates.

The Wentworth Mfg. Co., Limited

OAK AVENUE HAMILTON, ONT.


WOOD
OR STEEL
?
Wood or Steel--Which?
There is a United States embargo on steel except for war orders, but we do not need to use this as a particular argument to persuade you to buy Dodge Wood-Split Pulleys.
Dodge Wood-Split Pulleys have sufficient qualities of their own to justify their use at any time in preference to metal pulleys.
Because of greater adhesion they provide a better belt surface, consequently, there is less belt slippage. They are lighter, hence there is less weight friction. Both of these qualities prevent waste of power. They also cost less to buy than metal pulleys.
And, you can get Dodge Wood-Split Pulleys when you order them—No waiting—No delays.
We ship in all sizes from 4-inch diameters up to 6-feet diameters on the day orders are received.
The Dodge Manufacturing Co., Limited
Toronto, Ontario
Branch Warehouse
770 St. Paul St. West, Montreal
DODGE
WOOD SPLIT PULLEYS

Cuts Building Costs - Builds Better







Any type of building involves two items of expense—material and labor. **Hy-Rib** effects savings in both.

Hy-Rib is a steel-meshed sheathing with deep stiffening ribs. Its use eliminates forms, studs, stiffening channels and all special equipment. Labor cost, too, is lowered, for the operation is simplicity itself. The easily handled sheets are quickly set in place and the concrete or plaster applied.

Besides reducing labor and material cost, **Hy-Rib** provides a better building. Unnecessary weight is eliminated, valuable floor space saved. Such a building, being permanent and fireproof, is more valuable from a sales and rental viewpoint.

Hy-Rib is used inside for partitions, floors, ceilings, etc.—outside for roofs, sidings, stucco work, etc. Suitable for the smallest residence or the largest factory.

Valuable **Hy-Rib** handbook sent free.

TRUSSED CONCRETE STEEL CO.
OF CANADA, LIMITED

Walkerville, Ontario

Montreal Toronto Winnipeg
Calgary Vancouver

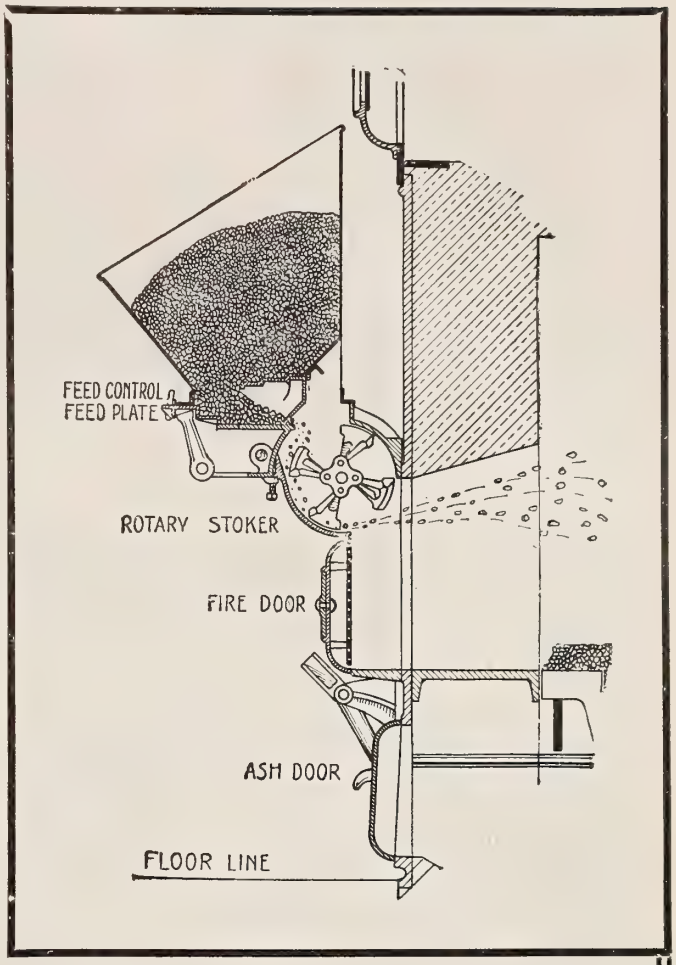
Truscon Building Products for modern permanent construction cover **Reinforced Concrete** in all its phases; **Steel Window Sash** of every type; **Metal Lath** for plaster and stucco; **Concrete Highway Reinforcement, Spot Grounds, Waterproofings, etc.**

TRUSSED CONCRETE STEEL CO OF CANADA LIMITED
TRUSCON
Building Products

HY-RIB

Not a pretty picture but—





It Solved the Coal Question for Another 10 Plants Last Month

And it freed 20 expert firemen for production work in the "profit-making" departments of these plants.

All because it shows the operating principles of the

Galt Sprinkler Stoker

and the logic of these principles appealed to the common-sense of the men who own the "10 plants" referred to in the caption of this advertisement.

Therefore will you please study this drawing.

Note the Rotary Stoker. In a light, continuous stream it automatically feeds to the furnace cheap anthracite dust to 3-in. lump. As it feeds, it so uniformly spreads the fuel as to give a level fire 3 to 4 inches thick.

Note the **closed** fire door. No in-rushing draft of cold air here to upset perfect combustion or to act as a drag on the efficiency of your boiler.

Also the Feed Control and Feed Plate. Not one part in contact with the furnace flame. No complicated mechanism that lump or low-grade fuels can clog.

The Galt Sprinkler Stoker operates with natural draft and with forced or induced draft equally well. It gives practically smokeless combustion.

Illustrated catalog tells how the Galt Stoker, with 10 to 20% less coal, makes more steam. Write for copy.

We Supply Turbine Forced Draft Blowers, Coal Crushers, etc. and Make Prompt Delivery of Our Products.

GALT FOUNDRY COMPANY, LTD.

GALT - - ONTARIO



FINISHED BRIGHT
FOR
ELECTRO PLATING
DEEP DRAWING QUALITY
ACCURATE GAUGE AND WIDTH
WE SOLICIT YOUR ENQUIRIES

MANUFACTURED BY
STANLEY STEEL CO., LTD.
Hamilton, Canada

MADE IN
PREMIER
CANADA
GALVANIZED SHEETS

For Every Good and Useful Work

Dominion Sheet Metal Corporation, Ltd.
Hamilton - Ontario

"CRANES MADE IN CANADA"



Electric Traveling Cranes

HAND POWER TRAVELING CRANES
ELECTRIC HOISTS, AIR HOISTS, FOUNDRY EQUIPMENT

Northern Crane Works, Limited - - - - Walkerville, Ontario



Which Bonds?

Britain and Her Allies Have Chosen

THE threat and menace of the Hun are fast fading, but there is still distance to go before the final and complete victory will have been won. To ask which bonds you choose is probably foolish, but remember you can only show the proper abhorrence to the one by giving your undivided support to the other.

Victory Loan of 1918

The spirit that animates Canadian soldiers abroad prevails at home. The 1918 Victory Loan will be over-subscribed. Canada will do her part. Your part depends upon you. Half-way measures are not enough. Throw yourself heart and soul into the Victory Loan movement. Buy Victory Bonds and talk Victory Bonds.

Your influence with your business associates, your employees and your friends will count. Do your part in ensuring Canada's continued prosperity.

Business judgment, patriotism and loyalty all demand your fullest co-operation for the 1918 Victory Loan.

Space donated by
Imperial Lubricants

IMPERIAL OIL LIMITED

Power Heat Light Lubrication

Branches in all cities



Canadian Carbide

Made in Canada

SOLD THE WORLD OVER

Second to None in

QUALITY, GAS YIELD
AND PACKAGE

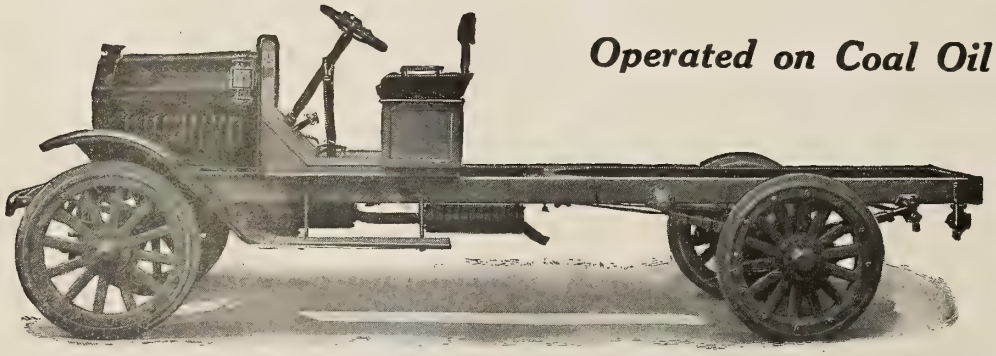
Works:
St. Catharines, Ont.
Shawinigan Falls
Que.

MANUFACTURED BY

Canada Carbide Company, Limited
MONTREAL - CANADA

"Little Giant"

WORM DRIVE TRUCKS



Operated on Coal Oil or Gasoline

Models for All Classes of Business

1 Year Guarantee backed by a corporation with resources of $14,000,000

CANADIAN PNEUMATIC TOOL CO., Limited

345 CRAIG STREET WEST

'Phone Main 1725

MONTREAL

Toronto Branch, 107 Church Street

Ormsby



Two of the Motor-Driven Rolling Steel Doors installed by Ormsby in the T. Eaton Co. Limited Building, Hamilton.

Most Convenient of all Fire-Doors

No matter how large the opening to be protected or how located, Ormsby Rolling Steel Doors may be opened and closed easily. The ordinary size have counter-balancing springs and are very easy to raise or lower by hand. The larger doors are equipped with chain and gear or may be motor-driven as in the illustration shown above. In all sizes they offer the utmost in fire protection and command low insurance rates.

These doors require no swinging space or sliding room. They fit into many awkward corners where other types of doors could not be used.

They economize storage space and facilitate the handling of goods.

In many a factory or warehouse, big savings in insurance premiums can be effected by the use of a few Ormsby Rolling Steel doors.

Let us show you how to use them to lower your insurance bills.

Write for full information, illustrated booklet and prices.

THE A. B. ORMSBY CO., LIMITED
TORONTO

Associated with The Metal Shingle & Siding Company Limited
Factories at Preston, Toronto, Montreal, Winnipeg, Saskatoon, Calgary.

AGENTS:

Maritime Provinces: F. A. Gillis & Co., Halifax, N.S.

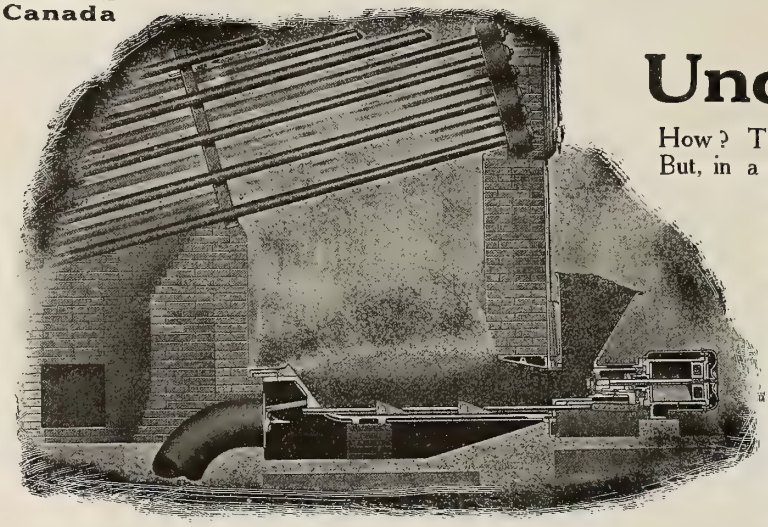
British Columbia: A. T. Chambers, Vancouver

Ontario: D. A. Cummings, Brockville

Of course you want to save money!

Then, we can point the way to most important savings if you develop your own steam power. We can show you how actual savings running from 15% to 25% naturally follow on the installation of the

Made in Canada



JONES Underfeed Stoker

How? That's just exactly what we would like to explain. But, in a nutshell, the Jones utilizes the principle of underfeeding which had been recognized in theory for nearly a century, as it was perceived to be the ***only*** method of burning bituminous coal which would utilize, as fuel, the volatile ingredients in coal, and which, in the ordinary method of firing, pass off unconsumed. The Jones Underfeed Stoker has been the practical solution of underfeed stoking, which is no longer a theoretical problem. Every feature and detail of the Jones Stoker as manufactured to-day has been well tried, and it has proven itself to be an automatic mechanical stoking device which is simple in construction, easily operated, and sure in the efficient results obtained. Write us for descriptive booklet!

Jones Underfeed Stoker Co., Limited

37-41 BRITAIN STREET, TORONTO

Sheet Metal Stampings
Pressed Steel Parts

We are Manufacturers for Other Manufacturers

Send us your Specifications To-day

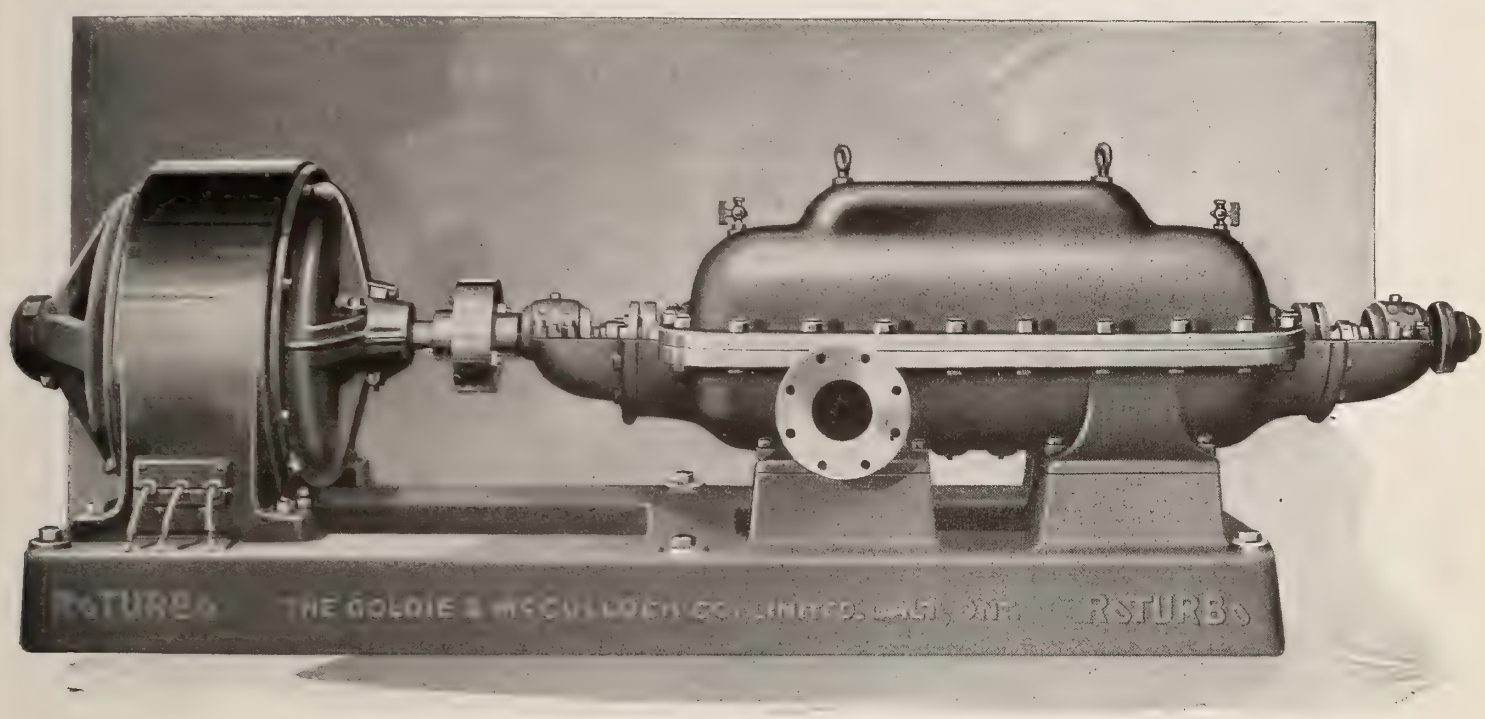
W. H. BANFIELD & SONS, Limited

370-386 Pape Avenue - Toronto, Can.

RoTURBo PUMPS

ARE SELF-REGULATING

And bear in mind that in addition to this self-regulating feature the original high efficiency of **RoTURBo** Pumps remains practically constant throughout a wide range of duty.



Motor Driven Type B4. Eight Stage REES **RoTURBo**
Patent Pressure Chamber Pump

A high pump efficiency rating amounts to very little unless it remains constant over a wide variation of pressure heads. **RoTURBo** design meets these requirements. Its self-regulating features also insure your prime mover against damage by overloading.

The **RoTURBo** will meet your pumping problems with greater economy and with higher efficiency.

We are glad to announce that we have secured the sole manufacturing rights for CANADA of the REES **RoTURBo** PRODUCTS and shall be pleased to supply complete information on request.

THE GOLDIE & McCULLOCH CO., Limited

Head Office and Works: GALT, ONTARIO, CANADA

TORONTO OFFICE: Suite 1101-2, Traders Bank Bldg.

WESTERN BRANCH: 248 McDermott Ave., Winnipeg, Man.

QUEBEC AGENTS: Ross & Greig, 412 St. James St., Montreal, Que.

BRITISH COLUMBIA AGENTS Robt. Hamilton & Co., Vancouver, B.C.

The Circo Page

The tax exemption feature of the new Victory Loan means that the Bonds bear practically the same interest as the ordinary 6½% bonds; and no other bond is half so safe as the Victory Bond backed by the whole of Canada's resources. With a wonderful value for your investment, you have an opportunity to help the boys who will soon be **over** the Rhine.

CONTRIBUTED AND PREPARED BY

CANADIAN INGERSOLL-RAND CO., LIMITED

With Offices at SYDNEY, SHERBROOKE, MONTREAL, TORONTO, COBALT, TIMMINS, WINNIPEG, NELSON, VANCOUVER

NO SHELLS HAVE DROPPED IN CANADA

ACROSS the seas thousands of gallant men have fought the fight that has kept Canada in peaceful possession of the rights of freedom.

Many of these men have died for Canada, have died for us and for the cause for which they fought—while others still "carry on," bringing the war nearer and nearer to a victorious end——

Without food, clothing, guns and ammunition these men could not have fought our fight for us. Without ***money*** these things could not have been supplied to them——

Money has been the backbone of this war, and because money in vast sums has been forthcoming, ***no shells have dropped in Canada***——

Now with Victory almost in sight, Canada asks us for more money. The work must be finished. Lend—and lend to the limit of your ability—through

CANADA'S VICTORY LOAN 1918

and in so doing you will be lending to yourself, safeguarding your own home, your own freedom of thought and action, and providing for the future of your families through the most attractive and the safest investment in the world, an investment bearing interest at 5½ per cent. per annum.

Now is the Time to Act!

BUY VICTORY BONDS

This space donated to the Victory Loan 1918 Campaign by

The Canadian Fairbanks - Morse Company, Limited

Halifax St. John Quebec Montreal Ottawa Toronto Hamilton
Windsor Winnipeg Saskatoon Calgary Vancouver Victoria

CANADA FOUNDRIES & FORGINGS LIMITED

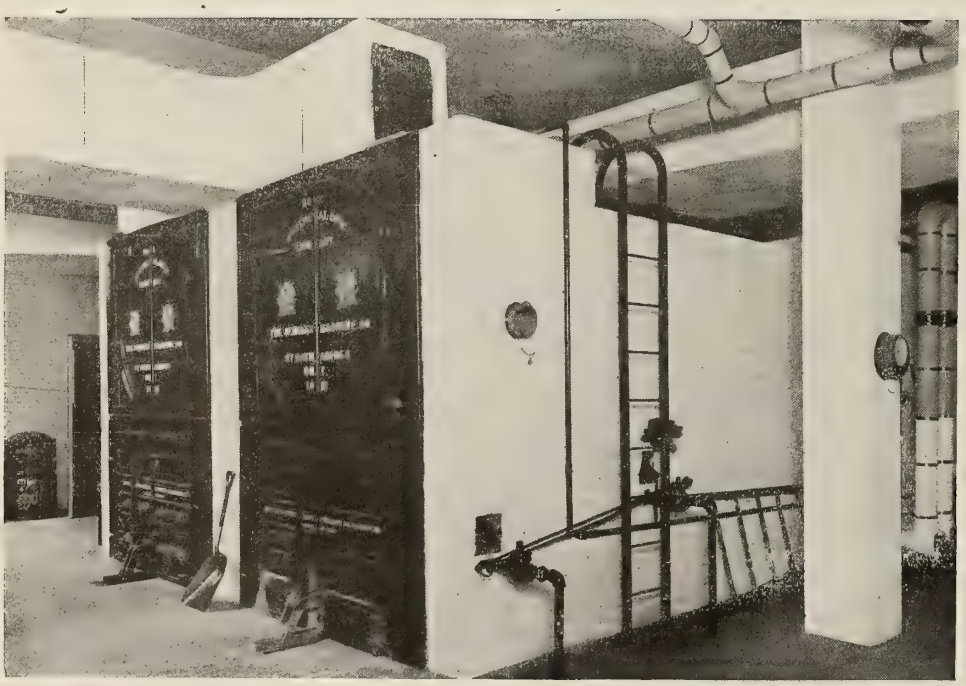
PRODUCERS AND DISTRIBUTORS

TOOL HANDLES

Made from Canadian Hardwood

Quantity Business Preferred. Inquiries Invited.

JAMES SMART PLANT
BROCKVILLE, ONT.



2 H.R.T. Boilers Installed at Montreal Civic Library

BOILERS

SCOTCH MARINE
HORIZONTAL TUBULAR
LOCOMOTIVE TYPES
VERTICAL TUBULAR

ALL SIZES FOR EVERY PURPOSE

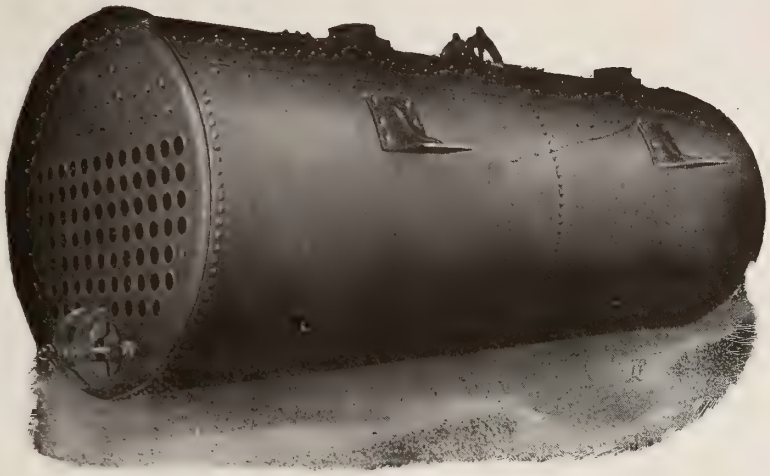
Eastern Agents—
Hall Machinery Co.,
Sherbrooke, Que.

Engineering and Machine Works of Canada
LIMITED

Formerly
St. Catharines Works of
Jenckes Machine Co., Limited

Head Office and Works ST. CATHARINES, ONT.

BOILERS



STANDARD RETURN TUBULAR BOILER

We make boilers of all kinds for any service.

We are also sole Canadian makers of Erie City Water Tube Boilers, Vertical and Horizontal.

The large number of pleased and satisfied owners of "INGLIS" Boilers is our best advertisement.

For (52) fifty-two years our boilers have been the standard. We have installations of our different types of boilers, which our representatives will be pleased to show to prospective purchasers. Write us for prices, etc.

INGLIS' PRODUCTS ARE "MADE-IN-CANADA"

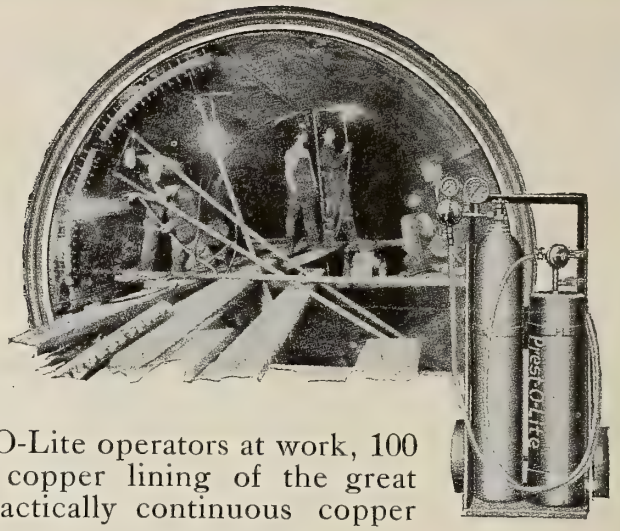
The John Inglis Company, Limited

ENGINEERS AND BOILERMAKERS

14 Strachan Avenue **Toronto, Canada**

Ottawa Representative: J. W. ANDERSON, 7 Bank Street Chambers

Welding Copper Lining in Aqueduct 2 Miles Long



THIS illustration shows the Prest-O-Lite operators at work, 100 feet underground, welding the copper lining of the great Catskill aqueduct, making a practically continuous copper tube over two miles in length.

The Prest-O-Lite Process of Oxy-Acetylene welding is daily offering new opportunities for improvement in engineering practice. It has been adopted as standard practice in thousands of factories, mines, machine shops, and shipbuilding plants, both in Canada and the States. In the production end, this process results in increased strength with reduced weight in vital parts, while effecting substantial savings in cost of material and labor.

Prest-O-Lite PROCESS

is not limited to production work. Its value in repairing is universally acknowledged. Worn and broken metal parts are quickly reclaimed and put back into useful service, avoiding costly tie-ups and delays. The actual saving on one Prest-O-Lite repair often more than pays for the entire welding outfit.

The Prest-O-Lite Process employs both gases (acetylene and oxygen) in portable cylinders. Prest-O-Lite Dissolved Acetylene (ready to use) is backed by Prest-O-Lite Service, which insures prompt exchange of full cylinders for empty ones. Provides dry, purified gas, insuring better welds, quicker work and lower operating cost.

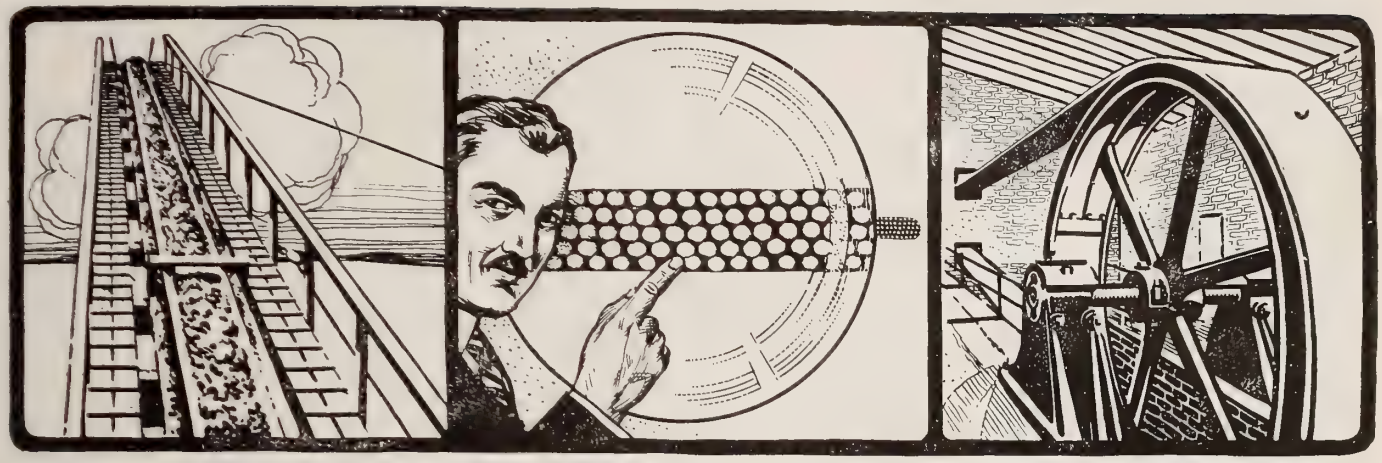
Manufacturers, Mining and Production Engineers will find our welding literature full of valuable data and helpful suggestions. It may help you to reduce your costs and improve your methods. Write for it to-day.



Address Dept. C-104.

PREST-O-LITE COMPANY
of Canada, Limited
Prest-O-Lite Building, Toronto

Plants at:
Toronto, Ont.; Merritton, Ont. Shawinigan Falls, P.Q.; St. Boniface, Man.



Dominion Rubber System Belting Insures Maximum Service

Dominion Rubber System Belts are built to a scientific quality standard which insures the proper width, thickness and type of construction to efficiently serve a given purpose.

Dominion Rubber System Belts are ***one-piece belts***—with absolute uniformity, dependability, economy and satisfaction built into each foot.

The layers of strong endless fabric are saturated and embedded in special rubber which gives a toughness that is practically indestructible.

Its rubber surfacing has a tested pulley grip greater than that of any other belt made, hence it allows minimum power leakage.

Where water, acids, oils, dust, grit, belt-shifters, etc., soon ruin ordinary belting, there is a type of Dominion Rubber System Belting that will withstand the severest punishment and eliminate many replacements and delays.

The largest users of belting in Canada have proved the value and efficiency of our belting in actual service and through the special free service of our belting experts, have cut costs and speeded up production.

This free technical service is yours to command whether you are a customer or not and it opens the door to the entire facilities of the largest rubber organization in Canada with a fifty year record for producing dependable products.

If your belting problems need emergency service, phone or wire our nearest branch.

Dominion
Rubber System
Manufacturers of
Dominion Hose, Packing and Industrial Rubber Goods
Dominion Tires, the Good Tires for every purpose.

Canadian Consolidated Rubber Co., Limited
Head Office, Montreal

Service Branches:

Halifax, St. John, Quebec, Montreal, Ottawa, Toronto, Hamilton, London, Kitchener, North Bay, Fort William, Winnipeg, Brandon, Regina, Saskatoon, Edmonton, Calgary, Lethbridge, Vancouver, Victoria.

CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION
RUBBER
SYSTEM
AND ASSOCIATED COMPANIES

15

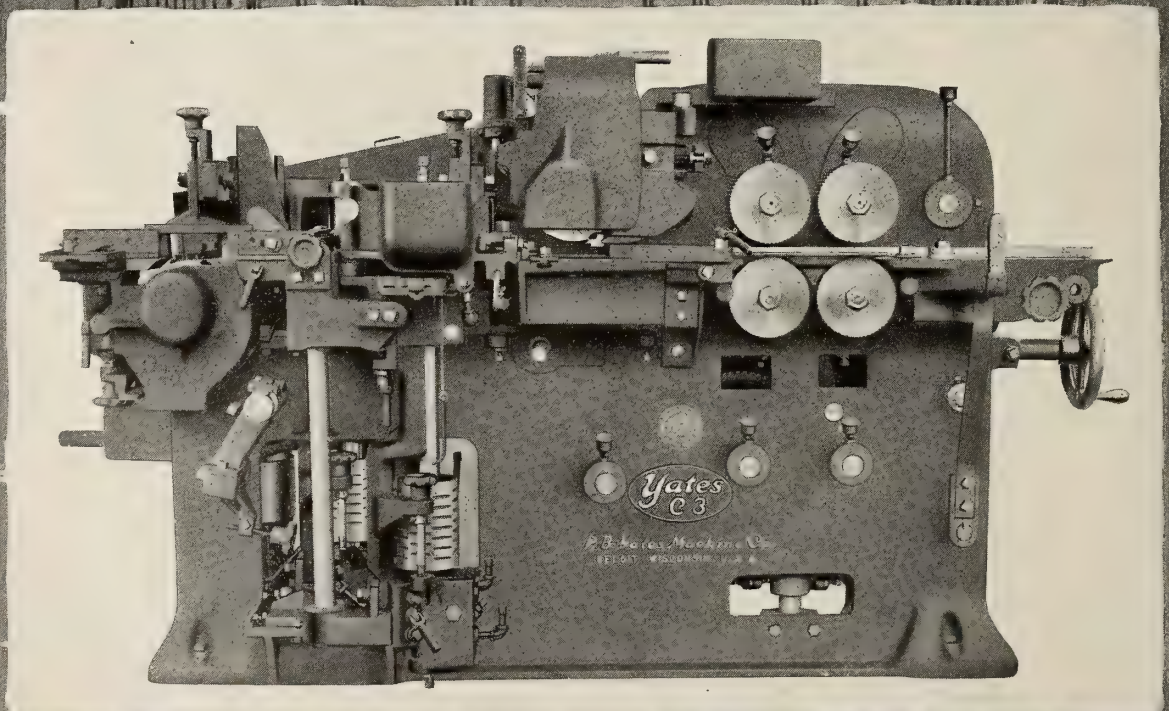
Yates TYPE C-3 THE MASTER MOULDER

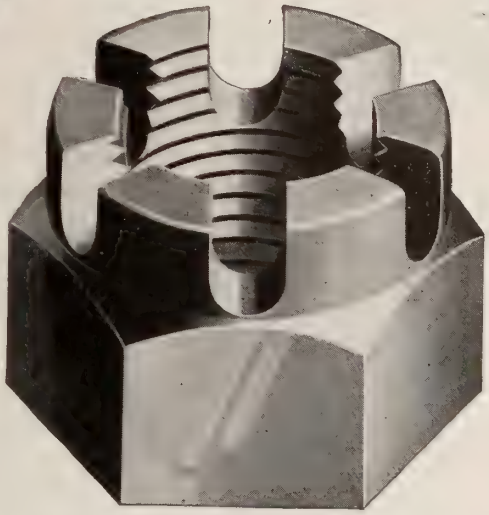
COMBINES the utmost in workmanship, compactness, durability, convenience and the ability to produce mouldings of the highest quality. That means labor saved and money earned for its owner. Seventy-five per cent. of all mouldings can be run on the C-3. Feeds up to 100 feet per minute, and more. Truly a master machine.

Investigate the possibilities of this new moulder to-day.
Send for Circular C-3. It is gratis, and imposes no obligation.

P. B. Yates Machine Co. Ltd.

HAMILTON, ONT. CANADA
U.S. PLANT, BELOIT, WIS.





NUTS IN STOCK

Plain and Castellated

Also Cap and Set Screws

Standard Sizes and Threads

Special screw machine work made to specifications from Iron, Steel and Brass Bars in sizes up to 2¼ " diameter and 10½" long.

Quotations on your samples or blueprints.

The National Acme Company

De Courcelles and G. T. R. Montreal, Can.

Made in



Canada

STEEL RAILS
SPLICE BARS
STEEL TIE PLATES

Structural Shapes, Standard Merchant Bars,
Blooms, Billets, Concrete Reinforcing Bars

PIG IRON
BASIC and BESSEMER

Let Us Quote on Your Requirements

Algoma Steel Corporation Limited
SAULT STE. MARIE, ONTARIO

MUELLER

REDUCING AND REGULATING VALVES

The right kind of valve is one that is adapted to your particular service. Different services under different conditions necessitate different types of valves. Don't guess. Consult us. When MUELLER valves are installed under our supervision we fully warrant them to control the service for which they are recommended. We make valves for water, steam, gas, air, oil and ammonia.

H. Mueller Mfg. Co. Ltd.

SARNIA, CANADA



THE BEST-KNOWN CABLE REEL IN CANADA

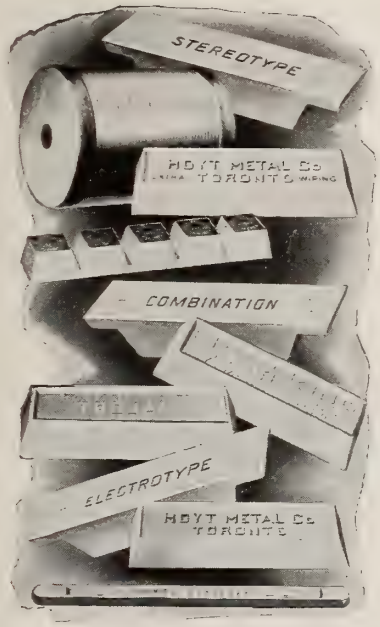
In Halifax or Vancouver, whether on the public thoroughfares of our larger cities or smaller towns, wherever there is a cable installation in progress, the reels invariably bear the name of the Northern Electric Company, Limited.

The installation may be overhead, underground or submarine. It may be for a Telephone Company, a Telegraph Company, a Railroad Company or for a street lighting system.

The quality, both of the product and the service, is largely the reason for the universal demand for Wires and Cables of Northern Electric manufacture

Northern Electric Company
LIMITED

Montreal Ottawa London Regina
Halifax Toronto Winnipeg Calgary
Vancouver



Nickel Genuine stands up under extreme heat

In foundries, glass works, etc., where machinery bearings are subjected to intense heat from without, in addition to heat produced by friction, a peculiarly hard babbitt must be used. The mixing of such a metal is an exact science—a science rarely crowned with such a success as Hoyt's Nickel Genuine. This wonderful heat defier is made with scrupulous care, is always correct in mixture to an ounce, and can be relied upon to give best results where bearings are subjected to exceptional heat. ***If you've had trouble with soft bearings try Nickel Genuine.***

HOYT METAL COMPANY

TORONTO, CANADA

New York, N. Y. London, Eng. St. Louis, Mo.

LIST OF MOTORS

No.	H.P.	Phase.	Speed.	Volts.	Cycles.	Starter.	Make.
1....	15	3	1500	550	25	Yes	T.H.E.
1....	50	3	750	550	25	Yes	Can. Gen. Elec.
1....	60	3	750	550	25	Yes	Crocker Wheeler
2....	50	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	C.G.E.
1....	10	3	1500	220	25	Yes	T.H.E.
1....	3	3	1500	220	25	Yes	Westinghouse CCL
1....	½	1	1800	110	60	No	Fort Wayne
1....	¼	1	1800	110	60	No	Westinghouse
1....	¼	1	1800	110	60	No	Fisher
1....	40	2	900	220	60	Yes	Fuller Wenstrom
1....	15	2	1800	220	60	No	T.H.E.
2....	5	2 or 3	1800	...	60	No	West. CCL rewound
2....	1	2 or 3	1800	...	60	No	West. CCL rewound
1....	½	2	1800	220	60	No	Westinghouse CCL
2....	10	2 or 3	1200	...	60	No	West. CCL rewound
1....	5	..	1200	220	60	No	Union (New)
2....	3	3	1800	220	60	No	C.G.E. rewound
4....	7½	3	1800	220	60	Yes	Lincoln

TRANSFORMERS

1.... 40 K.W. Type R 2200-220 volts. Packard

PLATER

1.... Type C Ostrander Seymour 6 volt—speed 750—amp. 800

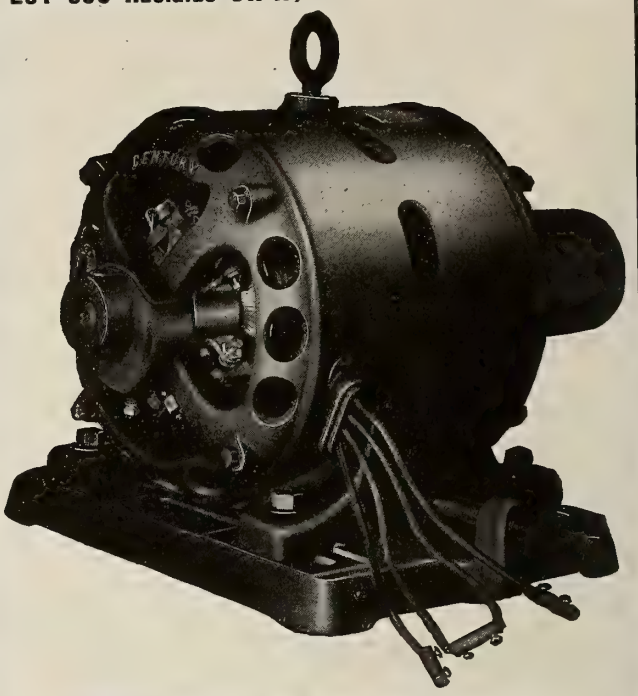
Toronto and Hamilton Electric Co. Limited

99-103 McNab St. North, Hamilton

Jones & Moore Electric Co.

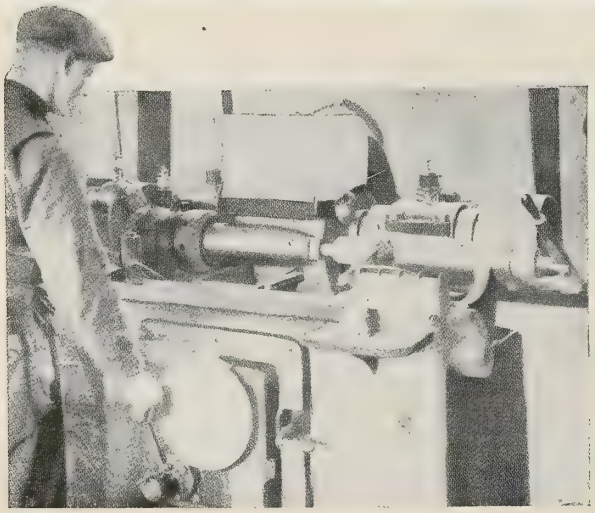
LIMITED

294-300 Adelaide St. W. - - Toronto



MANUFACTURERS OF DYNAMOS AND MOTORS

REPAIRS PROMPTLY PERFORMED



Canadian Hart Wheels

are used with great success in grinding

SHRAPNEL AND HIGH EXPLOSIVE SHELLS

Canadian Hart Wheels cut faster and longer than any other grinding wheels. Put your grinding problems up to us.

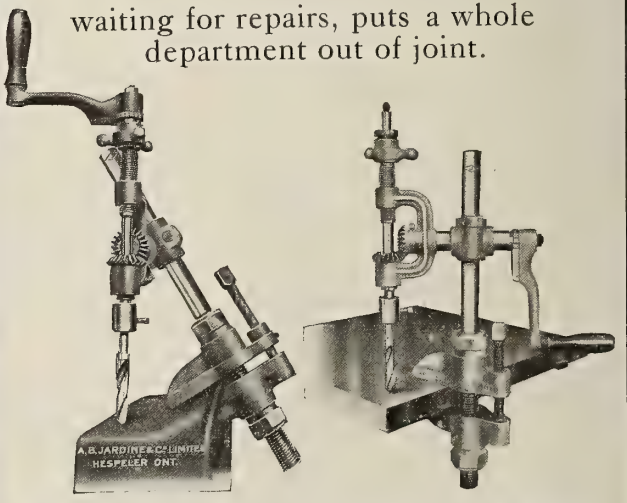
Canadian Hart Wheels, Limited

Manufacturers of Grinding Wheels and Machinery

Hamilton - Canada

A Machine Standing Idle

waiting for repairs, puts a whole department out of joint.



Jardine Universal Ratchet Drill

Gets a hustle on the repair job.
Every factory should have one or more.

A. B. JARDINE & CO.

LIMITED

HESPELER, ONT.

HUBBELL

REFLECTORS

MADE IN CANADA


ME1001—3445


MD100H


MN100P

ABUNDANCE of well-diffused light will put push, energy and cheer into every man and boy in your employ. It will help them to help you. They'll keep hustling—striving to do better work, more of it, in less time. You'll have higher average attendance, less spoilage, more profit.

Hubbell Reflectors will prove wonderfully helpful in your factory, store, garage—wherever you need clear, steady, well-diffused light.

The Hubbell line means more than a few stock styles. It covers every shape, size and finish required for unit, group and general lighting.

Misguided light means misguided men. Don't pay maximum cost for labor and material and get diminishing returns because of poor light.

HARVEY HUBBELL COMPANY

OF CANADA, LIMITED

TORONTO, CANADA

For the Credit of Canada!

BUSINESS is good in Canada. More men and women are now employed than at any other period in our country's history.

Many millions of dollars are being expended annually in Canada.

A large proportion of this money is paid out in wages—large sums go to our farmers.

Our well-paid workers and our prosperous farmers turn over much of their large incomes to the merchants from whom they obtain their household and personal requirements.

▫ ▫ ▫

But there is another side to the picture.

For four long years we have been defended by an army so brave and so well-equipped that it is called, with reason, "The most formidable weapon of its size on any fighting front."

To maintain that army costs money—and the money must continue to come from the Canadian people.

Not as a gift—but as a loan.

▫ ▫ ▫

The merchants of Canada must subscribe their share of that loan—must provide their fair proportion of the money that is to maintain our fighting strength, our industrial activity, and our farm prosperity.

You know that Canada cannot continue her splendid effort without money, the super-weapon in this war.

You know that Canada's Victory Loan 1918 provides an opportunity of lending your money to help win the war—and it will come back to you plus a high rate of interest.

Be ready then—to buy Victory Bonds.
Buy all you possibly can.

Issued by Canada's Victory Loan Committee
in co-operation with the Minister of Finance
of the Dominion of Canada

120



The $1,000 Poster Design, painted by Mr. Nicolet of the Art Department, Southam Press Limited, Montreal.

THE above design was selected from some 500 to 600 submitted in the recent Victory Loan Poster Competition. Mr. Nicolet had two other designs, "Back Him Up!" and "Doing My Bit Four Years," in the first seven selected.

Another Victory Loan item of which we are exceedingly proud:

WINS FIRST HONOR FLAG

Employees of the Southam Press, Limited, 19 Duncan Street, are the first to go over the top in their Victory Loan subscription. Before nine o'clock this morning they had bought $15,000 in Victory Bonds, representing 85 per cent. of the Company instead of the necessary 75 per cent. The firm wins an honor flag.

Application for the bonds came from 128 of the employees of the Company, including 83 male subscribers and 45 women subscribers. The aggregate is 15 per cent. of their pay rolls instead of the required 10 per cent. On an average each employee took out a bond of $117.—*Toronto Star, Monday, October 28th, 1918.*

SOUTHAM PRESS LIMITED

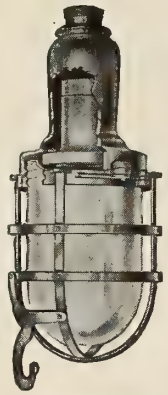
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CONDULETS

Condulets are made in special water-proof types and meet every marine wiring requirement—from ordinary elbows to junction boxes, lamp outlets and high capacity plugs and receptacles.

The few illustrations here given only suggest the lines. Why not write to-day for complete literature? We will gladly send it to you, Free.



TYPE VS WATER-TIGHT HAND DAMP



VIEW OF "WAR DOG," WIRED THROUGHOUT IN CONDULETS



TYPE VL MOISTURE-PROOF CONDULET



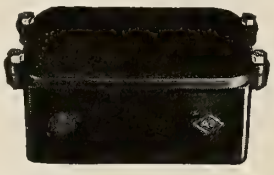
TYPE BRHD WATER-TIGHT PLUG RECEPTACLE EQUIPMENT



TYPE SCX PROJECTOR (1,000 WATT)



TYPE PNX WATER-TIGHT JUNCTION BOX



TYPE AD WATER-TIGHT JUNCTION BOX



TYPE LB OBROUND CONDULET BODY WITH BLANK METAL COVER



TYPE LR OBROUND CONDULET BODY



TYPE SDA PROJECTOR

Remember our Condulet Catalogs are Mailed FREE for the Asking.

Crouse-Hinds Company

OF CANADA, LIMITED

Toronto, Ontario, Canada



Thrift Will Win The War

"BUY VICTORY BONDS"

Thrift Will Win The War Now—and will form the Basis for our prosperity as individuals and for our power as a nation.

If you are a thrifty manufacturer YOU WILL EQUIP YOUR FACTORY WITH CHAPMAN DOUBLE BALL BEARINGS.

They transmit all the power, saving 75% of Friction Losses and 95% of Lubrication Costs.

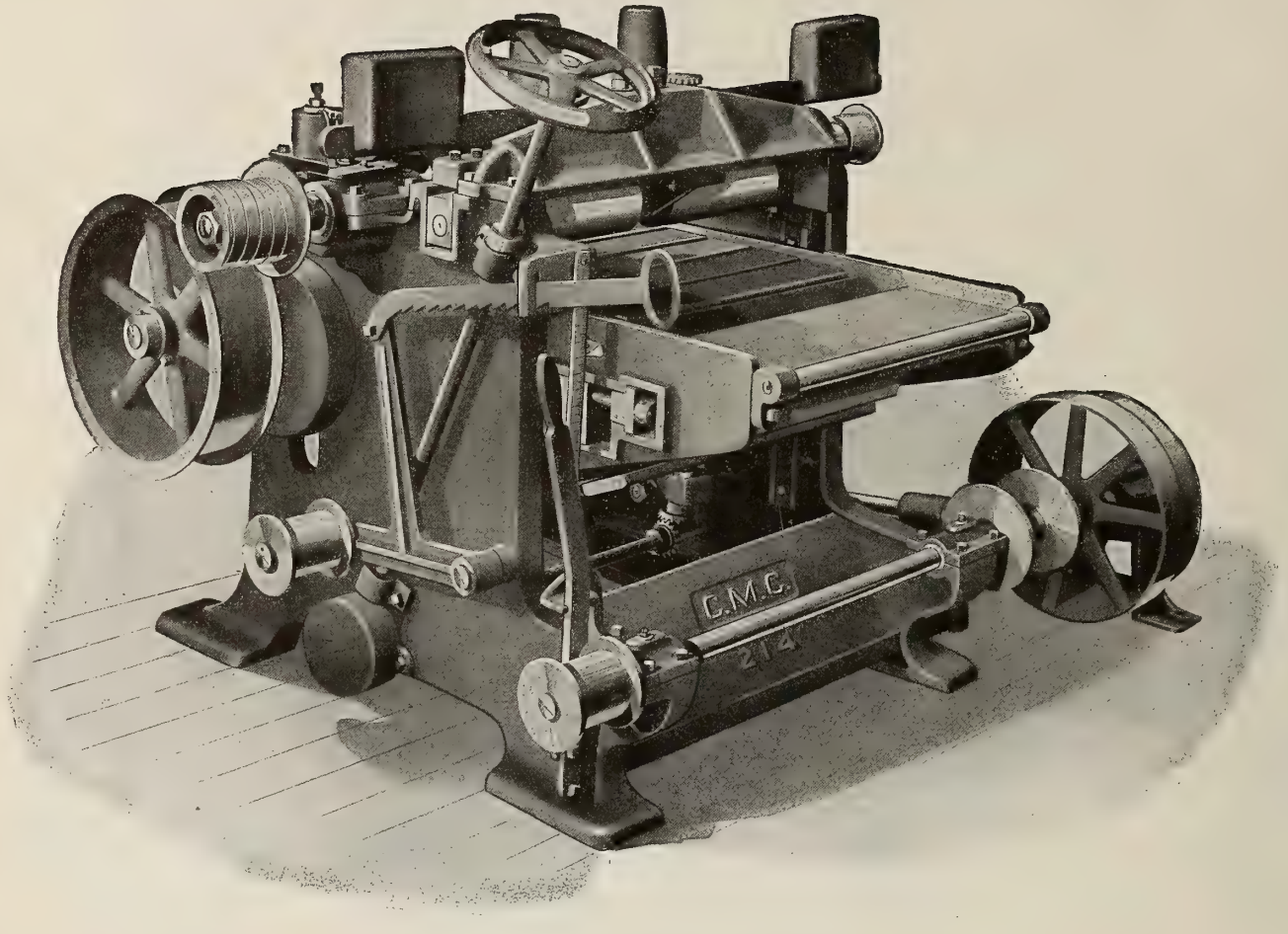
There is a Chapman Ball Bearing to fit every standard hanger frame on the market, interchangeable, with the self-oiling box of the same shaft size.

Chapman Double Ball Bearing Co. of Canada, Limited

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No. 214 Single Surface Endless Bed Planer

DESIGNED for planing all kinds of regular stock. It is a very strong and powerful machine, and while it is unsurpassed for dressing green or icy lumber, it is capable of doing as smooth work as that of a solid-bed machine.

CAPACITY. It is built in two sizes—24 inches x 10 inches and 26 inches x 10 inches—with straight or divided rolls as desired.

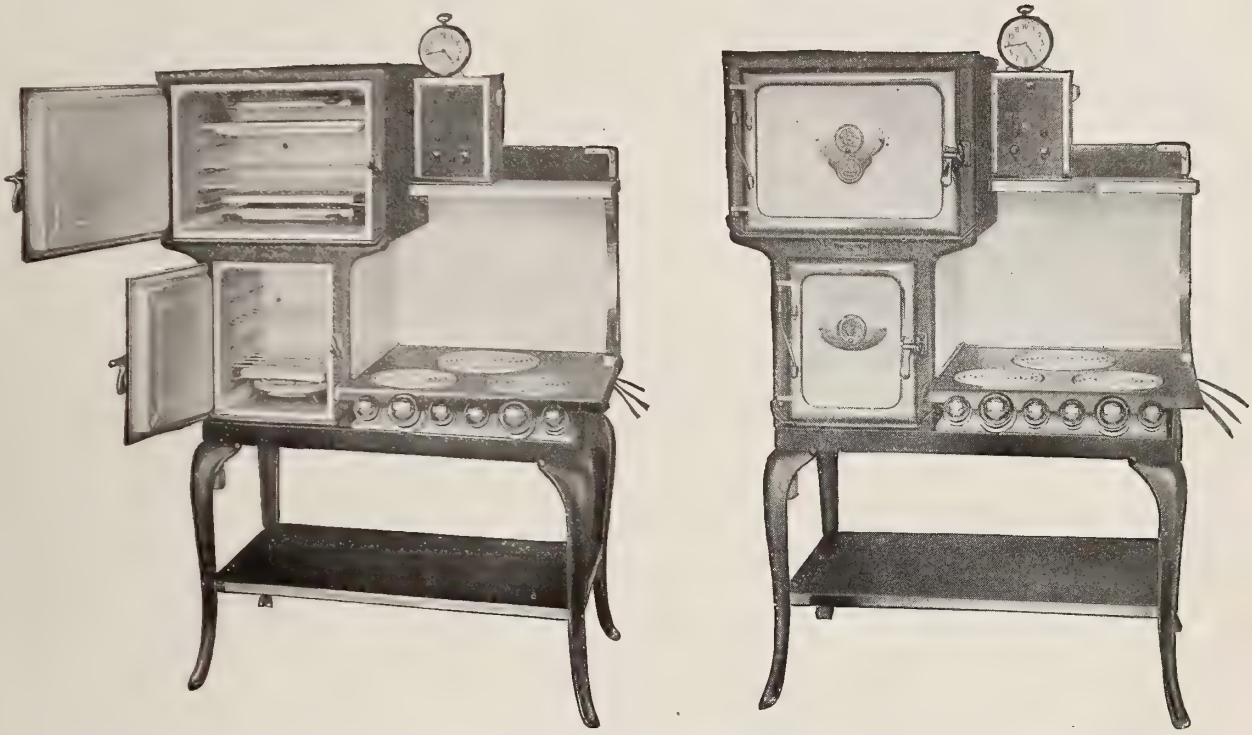
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Toronto Office and Warerooms: BROCK AVE. SUBWAY

Westinghouse
Electric Ranges



The heat insulation of the ovens of Westinghouse Electric Ranges, makes them require a minimum amount of current for cooking. The automatic features insure that no more current than needed will be used.

The ovens of Westinghouse Automatic and Semi-Automatic Electric Ranges will cook for 3 hours after the current is turned off.

Through the ingenious automatic control, the ovens allow the food to be cooked to the proper degree, without requiring attention. This principle, coupled with the substantial saving in coal, gives to the Westinghouse Electric Range an especial appeal in these days of conservation.

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Made in Canada



America's Largest Dye-Plant Is Covered with Barrett Specification Roofs—

THE National Aniline & Chemical Company, Inc., is the biggest concern in the new American dye industry. It has plants in various parts of the country and to-day is turning out dyes equal in every way to those formerly produced in Germany.

Its most important plant is the Schoellkopf Works located at Buffalo, N.Y., illustrated herewith.

This plant was designed and constructed by one of the largest firms of engineers in the United States, and it represents the very best in building construction.

Quite naturally Barrett Specification Roofs were chosen to cover the various buildings in preference to any other type because the experience of many years has demonstrated that these roofs have a longer life than any other and cost less per year of service. The reasons for their long life are :

First,

because they are constructed of Barrett Specification Pitch and Felt, *the greatest waterproofing materials known.*

Second,

because a *greater amount* of waterproofing is used in Barrett Specification Roofs than in any other kind of roof-covering, and the amount of waterproofing material in the roof largely determines its life.

Third,

because under the 20-Year Guaranty Plan the roofs must be constructed *under the supervision of our inspectors,* and we know, therefore, that they will be constructed right.

UNITED STATES FIDELITY & GUARANTY COMPANY
BALTIMORE, MD.

Barrett Specification Roof
20 Year Guaranty Bond

This is the Bond that guarantees your roof for 20 years

In view of all this, do you wonder that Barrett Specification Roofs are more popular than any other type for use on permanent buildings of all kinds ?

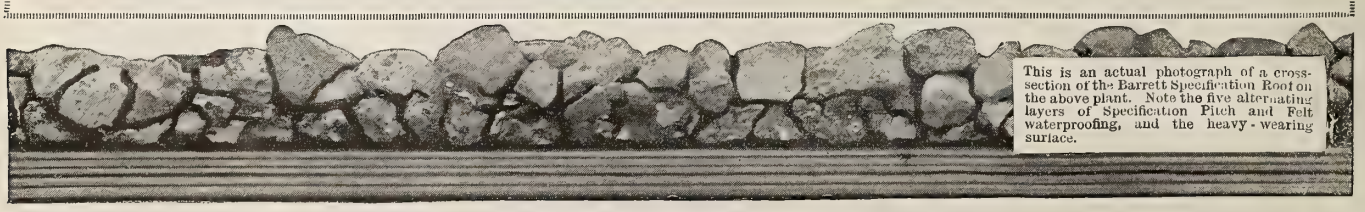
The 20-Year Guaranty Bond

We are now prepared to give a 20-year Surety Bond on all Barrett Specification Roofs of fifty squares and over, in all towns with a population of 25,000 and over, and *in smaller places where our Inspection Service is available.*

Our only requirements are that The Barrett Specification dated May 1, 1916, shall be strictly followed and that the roofing contractor shall be approved by us.

Copies of The Barrett 20-Year Specification, with roofing diagrams, mailed free on request.

MONTREAL TORONTO ST. JOHN, N.B. **The Barrett Company LIMITED** WINNIPEG VANCOUVER HALIFAX, N.S. SYDNEY, N.S.


This is an actual photograph of a cross-section of the Barrett Specification Roof on the above plant. Note the five alternating layers of Specification Pitch and Felt waterproofing, and the heavy-wearing surface.

INDUSTRIAL CANADA

ISSUED BY

The CANADIAN MANUFACTURERS ASSOCIATION.

INCORPORATED.

Vol. XIX. TORONTO, NOVEMBER, 1918 No. 7

INDUSTRIAL CANADA

Issued monthly as the official publication of the Canadian Manufacturers Association (incorporated), and devoted to the advancement of the industrial and commercial prosperity of Canada.

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Reconstruction Period Rapidly Approaches

THE events of the past few months in the arena of War have emphasized more than any amount of verbal argument could do, the supreme importance of taking steps to provide for after-war developments. So long as the enemy was unbeaten and the prospect of peace was far-distant, discussion of the problems of reconstruction partook largely of the nature of an academic debate. To-day the world is face to face with the possibility of an early peace—a peace that may throw us very suddenly into that period towards which our attention has been earnestly directed for months past by a few zealous and far-sighted citizens, but on which few people could bring themselves to bestow much thought.

The continued military successes of the past four months have radically altered our viewpoint, bringing appreciably closer the day of complete victory which seemed but a short time ago so very far away. They have, we are pleased to observe, given a fresh impetus to the efforts of those who are anxious to prepare Canada for the uncertain period lying ahead. It is gratifying to note the increasing activity all along the line and the growing interest which members of the Canadian Manufacturers' Association are evincing in the work of the several organizations formed to deal with post-war problems. May we earnestly bespeak for these organizations the active support of the entire membership.

The Problem of Shifting Labor

IT would be interesting to figure out just how much the shifting of employees from one war plant to another is costing the workmen, the manufacturers and the country at large. The men seem to be jumping about at an unprecedented rate without let or hindrance. Though their prime object is to get a better rate per hour it is doubtful if they gain much in the long run since in many cases they do not know how long the new job will last. When they go into new work, even of only a slightly different nature, there is the danger, sadly realized by those who have had the experience, that considerable quantities of good material is relegated to the scrap heap before the new workmen get the hang of the operations or of the different system in vogue. At best there is a slowing up of production in that department and in highly organized industries this often means confusion, loss and delay throughout the plant.

There is absolutely no guiding hand to direct men to where they are most needed or to retard unnecessary switching. We have long been accustomed to look down on semi-professional and professional sportsmen who will sacrifice anything for a little additional "long green." The bulk of the workmen are more conservative and have higher ethics than these professional gentry, but it is regrettable to note that the class of workmen who can fairly be compared with these sportsmen, without having the same justification, is growing every day. A little prior to and for some time after the entry of the United States into the war this state of affairs was very prevalent in the United States, and the disease has spread to Canada. We often look to the United States when it comes to matters of organization, and, sometimes be it confessed, not wisely but too well. Be that as it may, there is something worth thinking about when the reorganized Employment Service of the U. S. Department of Labor has deemed it wise to place from 7 to 12 bureaux in such thinly populated States

as Washington, North Dakota, Minnesota and Arizona, while in Philadelphia alone there are 15 of these bureaux.

While their function is in part to find available supplies of labor for war plants, part of it is also to check up the qualifications of the men applying for jobs, to see that the right man gets the job he is best fitted for and to discourage any tendency for well-employed labor to float uselessly from one plant to another.

In Canada a number of the Provinces have labor bureaux of their own, chiefly to relieve unemployment, and no doubt they are doing very good work when the opportunity offers, but there is no uniformity of practice or co-operation among them. To get effective action to cover the present emergency, it would be necessary for some organization to have control over all branches and to devise means of increasing the number of bureaux and greatly widen the scope of the work. This would entail the working out of some system whereby the bureaux would get definite knowledge of every man who wanted to get a job. As things stand now one war industry is competing against another to the detriment of both and the loss of a considerable output essential to the carrying on of the war.

Technical Men Interested

IT is clear that a new set of problems will follow the conclusion of peace, when many thousands of men must seek new places in self-supporting enterprizes. The neglect to exercise foresight will have far-reaching consequences which belated efforts cannot speedily overtake.

The problems of labor demand earnest and continued study and effective action. It is a good omen that the Government are seized of this fact, as shown by the activities of the Special Labor-Sub-Committee of the Reconstruction and Development Committee of the Senate, representing Governmental, Academic and official Labor.

The Government Committee has called in consultation the Labor Committee of the Canadian Manufacturers' Association, and important results are confidently anticipated. Hitherto, in the consideration of post-war reconstruction problems, the respective forces of Capital and Labor were thought to be adequately representative. It is to the credit of the Canadian Manufacturers' Association that they have visualized a broader prospect. They have requisitioned the co-operation of the Association of Technical Organizations of Toronto in framing a plan of suggestions to be submitted to the Government. This will ensure that the best thought of capital, of labor, and of our technically-trained men are all made available to the Government. The value to the country of this novel and obviously effective auxiliary will be immediately apparent, inasmuch as the interests of Canada are involved in the successful harmonizing of its varied thought and enterprizes.

The advancement of Canada and the well-being of its workers will depend not alone upon the rural or urban industries, but upon an all-round development, guided and proportioned not only by local demands but by close study of the opportunities afforded abroad for marketing surplus products.

The C.P.R. Changes

IT was inevitable that sooner or later a change would eventuate in the management of the Canadian Pacific Railway Company. That it has come a little sooner, perhaps, than most people had reckoned is not to be wondered at since it is known that for some time past Lord Shaughnessy had been anxious to withdraw from the active management of the big system. His reign as head of the organization has been a long and successful one, and of him it can be said that to his ability and energy the property owes much of that international prestige which it has attained in the past two decades.

To the manufacturers of Canada the significant feature in the choice of Lord Shaughnessy's successor in the presidency of the road is the preference which has been shown to a representative of the legal department rather than to an operating man. That a lawyer should be the selection for such an office would, but a few years ago, have been deemed incredible. It would have been regarded as equivalent almost to placing a clergyman in charge of a manufacturing establishment.

However, times have changed and more recognition is being given to the thoroughly trained mind, no matter in what calling its owner may be found. Excellent officers for Canada's army have been discovered in all walks of life and, while the new president of the C.P.R. may lack experience as an operating man, it will be found that he has other qualifications that will fit him for discharging the duties of the position.

It is also recognized, and has been commented on by the daily press at the time of Mr. Beatty's appointment, that the big problems before the railway are no longer technical transportation problems, but questions of policy, in the handling of which a clever lawyer will be able to play a more effective hand than a regular railroader. Transportation problems may be left for solution to the able departmental heads surrounding the chief executive, but these more intricate matters, affecting finance, even the very existence of the road as a privately-owned property, demand the attention of the man of legal mind and training.

The other feature of the change which has been commented upon with much interest is the new president's youth. He is only forty-one. As years go, he has not had time to gain much experience. Yet it is recognized that he has had the supreme advantage of being trained in a splendid school. It is not for nothing that he has enjoyed the experience of close association with Lord Shaughnessy during the past ten years or more, and, if the story is true that the late president had determined long ago to make Mr. Beatty his successor, there has been a



A Big Crop from Unused Factory Property

This interesting photograph shows the threshing operations recently conducted on the grounds of the Peterboro works of the Canadian General Electric Co., Limited. Last spring the Company plowed up and seeded the unused portion of the factory property in Peterboro. The crop harvested totalled 700 bushels of oats and 83 bushels of buckwheat, a very substantial contribution to the Canadian bread basket for 1918. "Industrial Canada" is indebted to Hon. Senator Nicholls, president of the Company, for this illustration of Greater Production effort.

good deal of quiet, intensive training going on behind the scenes in Montreal.

Amid the other changes co-incident with the retirement of Lord Shaughnessy and the selection of Mr. Beatty as president, the most important has been the placing of Mr. Grant Hall in general charge of operation. If Mr. Beatty typifies the recognized need on the part of the railway corporation of placing the control of its destinies in the hands of an able lawyer, the selection of Mr. Hall for the scarcely less important work of keeping the wheels turning smoothly, has been no less happy. He is a thoroughbred railroad man, who has risen from the ranks; has evinced much ability in the posts of responsibility he has already been called upon to fill; and may be counted upon to maintain the high degree of efficiency in operation established under the regime of Lord Shaughnessy.

Sinister Propaganda

BOTH in the United States and Canada, patriotic citizens are sometimes unconsciously helping the enemy to hamper the progress of native industry. Two very striking instances of how the German propagandist works this nefarious game were brought out at a recent meeting of the American Chemical Society at Cleveland, Ohio.

The first case was cited by a prominent American dye chemist. This gentleman related how upon opening his package of laundry he had found a slip of paper stating that, since German dyes were off the market, laundrymen could not guarantee the domestic dyes, and the customer was advised to refrain from buying colored wash goods until after the war.

Knowing this to be untrue, the chemist asked his laundryman where he had obtained such misleading information. The laundryman stated that a laundry journal had been authority for the statement. The editor of the laundry journal said that he was given the information by an officer of a laundryman's association. When this officer was approached on the matter, he admitted that he had been responsible for the information, but went on to say that he obtained the information directly from an official of a German company, and then the laundry official clinched his argument with the remark, "These people certainly ought to know." It did not take the chemist long to show the official that he was not only helping the Hun but that he was hurting the sale of American dyes, which, dye for dye, were fully equal to the German product.

At another time a dye chemist noted the following sign in the bathing suit department of a large New York store:

"Owing to present conditions in the dye industry, we are unable to guarantee the colors of these goods."

When questioned closely regarding "before-the-war" bathing suits, the management was forced to admit that it had never guaranteed bathing suit colors not to fade. "Why, then, do you infer that present conditions have anything to do with the colors in bathing suits?" The management immediately realized that the store was really spreading Hun propaganda and the signs were removed and replaced by the following:

"We do not guarantee colors in bathing suits not to run and have never done so. We know of no reputable house that will guarantee colors when exposed to the sea water and sunshine."

The Efficacy of Good-Will Advertising

IT has always been a tenet of good advertising that the creation and maintenance of good-will is often of as great importance as the actual securing of business. Just now, when manufacturers have all they can do to fill orders and there exists no desire to open new accounts, it is exceedingly desirable that good-will should be maintained. This point receives the endorsation of no less an authority

than William C. Redfield, Secretary of Commerce at Washington, who applies it particularly in connection with foreign trade.

"My attention has been called," says Mr. Redfield, "to the fact that some of our far-seeing and efficiently managed export concerns are resorting to good-will advertising in foreign markets where shipping difficulties and trade restrictions have made it necessary to mark time in a sales way.

"On the other hand, there are firms that seem to be at a loss to know what to do in the face of the export restrictions and lack of tonnage Some are inclined to turn their backs on foreign trade until the war is over.

"Let me suggest good-will advertising for all firms that have no reason to expect improvements in their foreign business while hostilities continue. Such advertising does not aim at immediate profits. It is intended to keep the name of a firm or of a product before a community when circumstances have interfered with actual trading. It indicates an interest in the community that is always appreciated and it makes a favorable impression on the publishers.

"It seems to me that a number of advertisers could club together and make a more impressive showing than could be hoped for through individual efforts. Through co-operation, advertisements could be grouped and displayed in the most telling fashion. Associations of exporters and manufacturers or chambers of commerce could handle such an undertaking to good advantage.

"I think the most noteworthy feature of the recent Chemical Exposition in New York was the fact that of all the exhibitors—and there were more than ever before—only a very small percentage were looking for orders or could possibly fill orders if they found them. They are devoting all their manufacturing efforts to war purposes, but are giving a reasonable amount of attention to keeping their goods and their marks before their prospective future customers. That is one sort of good-will advertising.

"In addition to the ultimate benefits to be gained by the firms that advertise in a far-sighted way, the money thus spent will create good-will for our country as a whole and for our business as a whole. When an advertising campaign is shown to be at once patriotic and good business there is very little left to be said against it.

"Good-will advertising is not new, but its application to the present situation in some countries will, perhaps, be a new thought to many firms. Business houses in other countries are now using this method, and we should not be behind."

Employment After the War

A GREAT deal of time and thought has been given by many of our members to the absorbing problems that will be created by the cessation of hostilities.

It goes without saying that the disruption of the Canadian industrial world, attendant on the cessation of the war, will be immense, almost beyond description. If Canada is fortunate enough to obtain large contracts for building materials and other essentials of reconstruction in the devastated allied countries, Canadian industries now more or less dormant will find occupation for a considerable number of men. But even among firms accustomed to producing building materials there has been munition making and other efforts of a purely war nature. The change-over would call for time in the reorganization of the plants to follow peace pursuits. With double emphasis, the same is true of industries now devoted almost entirely to war work, but formerly occupied in the production of the ordinary merchandise and equipment of Canadian commercial, agricultural and industrial life.

It is self-evident that when the upsetting conditions come, many firms employing thousands of men in the aggregate will be able to find occupation for very few for a more or less extended period. To these must be added, with deductions for the fortunate firms who are able to re-engage immediately the soldiers who left their employ to go to the war, the bulk of the men newly discharged from the army.

It is, therefore, fitting that all men who have the true interests of Canada at heart should devote themselves to the solution of the most urgent problem confronting them —the provision and readjustment of employment in the after-war period.

Many members of the manufacturing community have shown great enterprise and skill in conducting war business, have contributed a share of their profits to the funds of the nation and have given an earnest of their faith in Canada's future by investing heavily in the various Government loans, and in devoting their time and energy to the successful issue of various campaigns. It is certain that men of this stamp will not refuse to obey the high call to duty in making every possible provision for the employment of their share of the labor forces of the country on the cessation of hostilities.

But the conditions will be of such an unprecedented character that the best efforts of individual employers will only serve to ameliorate the situation. What is needed to avoid contrary counsels and overlapping, is some co-ordinated seizure of the salient factors and the institution of a well advised and well defined policy that will avert the impending crisis.

This Association may count itself fortunate in the possession of members who are seized of the importance of making constructive suggestions to the Government. A committee has already been at work, as is evidenced by the programme of suggestions given in another column that has been discussed with the Labor Sub-Committee of the Cabinet Committee on Development and Reconstruction. It is planned to widen the scope of the Committee and bring into action the best thought of various trades and branches represented in the Association, and through the same prompt co-operation that has been in evidence in all patriotic endeavors in the past, undoubtedly our efforts will be crowned with success.

Reconstruction Period Recommendations

Important Memorandum Presented by the Labor Committee of the Association to the Labor Sub-Committee of the Reconstruction and Development Committee of the Dominion Government at Ottawa on October 23rd.

THE most pressing problem at the close of the war will be to find employment for all available labor.

The manufacturing industry will be more seriously affected than any other, and it is certain that unless the Government takes immediate steps to assist the manufacturers to increase the demands for their products they cannot cope with the situation.

Twelve Suggestions

Therefore, we would ask the Government to seriously consider the following suggestions:—

1. That the plan for building up an export trade, to be submitted to the Reconstruction and Development Committee of the Cabinet by the Export Committee of the Canadian Manufacturers Association, be adopted.

2. That a commission be appointed to take a survey of imports with a view to ascertaining what part of such imports could be made to better advantage in Canada.

3. The Government's Publicity Department should be instructed to start immediately a nation-wide campaign to educate the people on the importance of buying Canadian products, and we respectfully suggest that the policy herein advocated be adopted by the Government as a fixed and permanent practice for the conduct of Government departments.

4. The Dominion Government, the Provincial Governments and municipalities be prepared to start, immediately after the close of the war, all necessary construction work.

5. That immediate steps be taken to ascertain what use can be made, after the war, of plants employed during the war for the production of munitions and war supplies.

Return of Soldiers

6. That it would be in the national interests if, as far as practicable, our soldiers were returned to the provinces from which they came, and that in determining the order in which soldiers will be returned the military authorities be requested to govern themselves in conformity with information to be periodically supplied them by the Government Employment Bureaus as hereinafter described.

7. That Government Employment Bureaus be started immediately, and that one of the principal duties to be assigned them be that of surveying the labor market with a view to furnishing the military authorities with monthly reports, showing both by location and occupations the number of men for whom immediate employment can be found.

8. That a practical land settlement plan be worked out at once, and in connection with same the Publicity Department should start a campaign to educate our soldiers in the advantages of farming.

An interesting series of booklets should be supplied to our soldiers while they are still at war, particularly designed to show that community farm life can be made not only profitable, but socially attractive in the older as well as in the newer provinces.

9. The Publicity Department of the Government should start at once an " Optimism after the war " campaign, and in this they should ask the press of the country to co-operate.

The country is drifting into a pessimistic frame of mind as regards "After the war" conditions, this might easily bring about far-reaching depression unless it is quickly checked.

Demobilization

10. When the time comes for demobilization the Militia Departments and the Government Employment Bureaus should co-operate in order that the lapse of time between discharge and employment be as short as possible. Congenial work is not only an antidote for discontent, but it will be a pleasant relief for the soldier after the ordeals of war.

11. Having regard to the important part which research must necessarily play in Canada's industrial reconstruction, the appropriation for that purpose should be increased to not less than one million dollars annually, and that the administration should be entrusted to a Board of business men.

12. That the Government, in shaping its policy with regard to the problems of standardization and the cost of living, should follow the practice that has grown up at Washington of calling the manufacturers and the representatives of their employees into consultation; that price agreements rather than governmental fixed prices be made the governing principle so long as such agreements can be arrived at that will accord with the Government's own sense of what is right and fair.

The Government may rely upon the manufacturers collectively and individually to do their utmost to provide employment and to show proper consideration for all those who may be handicapped by participation in the war, but if the Government will co-operate along the lines suggested above the manufacturers will be in a position to render much greater service than would be possible under ordinary conditions.

News and Views of the Association

THERE will be found each month in this department a record of the various activities of the Canadian Manufacturers Association during the preceding month. The information is supplied to INDUSTRIAL CANADA officially, and all members of the Association are urged to acquire the habit of reading and checking over the contents of the department carefully in order to keep themselves posted on the work of the Association.

Executive Council Meeting

The next meeting of the Executive Council is scheduled for Thursday, November 14, and will be held in the Association Board Room, Board of Trade Building, Montreal. It is expected that the first vice-president, Mr. T. P. Howard, will preside. Several matters of special importance are to come before the Council, including the labor question, reconstruction and the development of export trade.

Bankruptcy Act

The conference between counsel representing the Canadian Manufacturers Association, the Canadian Credit Men's Association and the Toronto Board of Trade, to harmonize, if possible, the various views on the draft of the proposed Dominion Bankruptcy Act, had to be postponed on account of the influenza epidemic.

Ontario Workmen's Compensation

Notice has been served by the Association on the Accident Prevention Association of Ontario that at the next session of the Legislature, the manufacturers propose to present a bill amending the present Ontario Workmen's Compensation Act with a view to giving the manufacturers more control over the distribution of funds contributed by them.

Victory Loan Organization

Messrs. John Firstbrook, S. R. Parsons, L. L. Anthes and H. Macdonald were appointed last month to represent the Association on the Ontario Employees' Committee, which was formed to deal with the organization of employees in the Victory Loan campaign.

On October 17, the following circular was despatched to members regarding organization for the Loan:—

"The Canadian Manufacturers Association has four representatives on this committee, who have assisted in working out a model plan which is so elastic as to permit of its being applied to any size organization. We are naturally anxious that the members of the Association shall fall in with this plan, and back up the local chairmen and the local district organizers in carrying it out, making such adaptations as seem best for their particular community. You will recognize that no plan, no matter how carefully thought out, can succeed unless it is conscientiously supported and carried out. You will be approached by the County Organizer and County Chairman of your district, who will supply you with this model plan and the forms to be used.

"It is our earnest hope that the returns from this more intensive organization will place the total amount of industrial subscriptions far in excess of those of last year.

"We understand that an honor flag is to be presented to each concern that reaches its objective; that all will be asked to strive for the same objective which will be advised later, so that all may be on an equality.

"We are asked to send this circular out by the Ontario Employees' Committee, but we feel that it is a matter that may be of interest to our members in other provinces, and naturally we will hope that if your provincial organization makes a similar request you will give it the same encouragement and assistance."

The services of Mr. H. R. Thompson, secretary of the Maritime Branch, C.M.A., were lent for two months to the Victory Loan Committee for Nova Scotia, of which Mr. Thompson is acting as secretary.

Formation of Local Sections

While no new local sections have been organized since the last report, the head office of the Association has been in receipt of several inquiries which would seem to indicate that interest is being aroused in this direction. In St. Catharines, Mr. R. A. McKinnon, of the McKinnon Industries, Limited, has been sounding out local manufacturers and is finding them favorable to the idea of establishing a branch. Brantford, Peterboro and Ottawa have also been heard from. The advantages derivable from organizing manufacturers in any community or district into a local branch, with officers and secretary, is so patent that it scarcely calls for elaboration. Machinery is at once established for dealing with local problems as they arise.

Woollen Section Formed

A Woollen Manufacturers' Section of the Canadian Manufacturers Association was formed at the King Edward Hotel, Toronto, on Wednesday, October 16. Representatives of about thirty-six mills were present, and at the opening of the meeting, Mr. Richard Thomson, of the Hawthorn Mills, was elected chairman, and Fred H. Yapp secretary.

The Chairman addressed the meeting, explaining the object in calling the members together and touching on the problems which were likely to be faced by the woollen industry in the re-adjustment of conditions certain to take place after peace is concluded. He said that, while perhaps he was responsible for the calling of the meeting, he had no programme to submit nor suggestions to make, but asked for a full and frank expression of opinion

from all members present as to the advisability of forming some organization to take care of these and other problems that may arise from time to time.

Quite a number of representatives expressed their views, some arguing that the proposed association should be operated as a section of the Canadian Manufacturers Association others expressing the view that it would be more useful as an independent association with its own officers. It was finally decided to ask the Canadian Manufactures Association to send over one of its officials to explain the conditions under which sections of that Association are conducted, and Mr. H. Macdonald, assistant general secretary, responded. Mr. Macdonald gave a lucid statement of the operations of the Canadian Manufacturers Association and showed the benefits to be derived from affiliation with that body.

It was then moved by Mr. Beaumont, Beaumont & Co., and seconded by Mr. Holden, Sterling Textile Co., that in the opinion of the gathering it was advisable to form a Canadian Woollen Manufacturers Association, embracing all manufacturers of woollen goods in Canada, such association to be conducted as a section of the Canadian Manufacturers' Association.

It was moved by Sweeney, Reliance Knitting Co., seconded by Mr. Holdroyd, Sterling Textile Co. and Nova Scotia Underwear Co., that the officials of the section consist of a president, vice-president, secretary-treasurer and an executive committee to be composed of the president, vice-president and one representative of each of the following branches of the woollen industry, viz.: cloth, blanket, underwear, sweaters and fancy knit goods, hosiery and spinning.

The election of officers resulted as follows:—President, Richard Thomson, Hawthorn Mills; vice-president, H. G. Smith, Mercury Mills; secretary-treasurer, Fred H. Yapp; representatives of sections, cloth, Mr. Hepburn; blanket, Mr. Heddle; underwear, Mr. Smith; sweaters and fancy knit goods, Mr. Sweeney; hosiery, Mr. Beaumont; spinning, Mr. Clayton.

The president, vice-president and executive committee were instructed to draft a constitution and by-laws and submit them at a special meeting to be called as soon as convenient. The secretary was instructed to send a report of the proceedings to all the mills that had been invited to attend the meeting.

Increased Values and Fires

Considerable attention was aroused by a circular recently distributed by the Association dealing with the increase in property values which has taken place during the past four years and the necessity for covering the increase by placing additional fire insurance. Judging from correspondence received from members with reference to this circular, very many firms appear to be under the impression that the increased cost of replacing buildings and machinery would not be taken into account in adjusting a claim, provided the book values of such items had not been increased. When we consider that many firms, particularly financial institutions, write down the building values in their books almost to nil; it will be clear that such book values cannot be considered as evidence of values in the event of a fire. The insured is entitled to collect from the insurance companies on the basis of the replacement values, immediately preceding the fire, of the property damaged or destroyed, less, of course, depreciation according to the age of the property. It will be obvious, therefore, that, in calculating the values for the purposes of the co-insurance clause, the same basis must be adopted. If the insurance policies contain no co-insurance clause the insured can collect any loss in full up to the amount of insurance carried, and so would lose financially only in the event of a severe fire. With the co-insurance clause contained in the policies, however, it is highly important that the amount of insurance should be adjusted, otherwise the insured would have to bear their proportion of any loss which might occur.

Iron and Steel Section Formed

At a meeting of iron and steel users held in the offices of the Association on October 16, with Major L. L. Anthes presiding, it was moved by Mr. G. McGhie, Welland Vale Mfg. Co., St. Catharines, and seconded by Mr. W. H. Shapley, Goold, Shapley & Muir, Limited, Toronto, that those present resolve themselves into a section of the Canadian Manufacturers Association, and that a small executive committee be formed to take up all questions affecting the interests of the members of the section with the War Trade Board and otherwise.

Thereafter the following Committee was appointed:—

Major L. L. Anthes	Anthes Foundry Co., Ltd., Toronto.
A. Hatch	Canada Steel Goods Co., Ltd., Hamilton.
H. H. Biggert	International Harvester Co., Ltd., Hamilton.
G. McGhie	Welland Vale Mfg. Co., Ltd., St. Catharines.
J. N. Shenstone	Massey-Harris Co., Ltd., Toronto.
Arthur White	Geo. White & Sons Co., Ltd., London.
J. C. Notman	McKinnon Industries, Ltd., St. Catharines.
H. J. Waddie	Canadian Drawn Steel Co., Ltd., Hamilton.
P. McMichael	Dominion Radiator Co., Ltd., Toronto.
W. H. Shapley	Goold, Shapley & Muir, Ltd., 73 Jameson Ave., Toronto.
H. N. Fleury	J. Fleury's Sons, Aurora.
R. Harmer	Sawyer-Massey Co., Ltd., Hamilton.
N. W. Clare	Clare Bros. & Co., Ltd., Preston.
A. R. Page	Frost Steel & Wire Co., Ltd., Hamilton.
W. E. Skelton	Canadian Shovel & Tool Co., Ltd., Hamilton.

It was suggested that the Committee consider the question of appointing a salaried secretary, who should devote his whole time to the interests of the section, and that the Committee confer with the Executive Committee on the subject.

Labor Committee Meets

A well-attended meeting of the Labor Committee, preliminary to the holding of a conference with the Labor Sub-Committee of the Committee on Reconstruction and Development of the Dominion Government, was held in the Association's offices on the evening of October 18, with Major Anthes in the chair.

A letter was read from Mr. G. M. Murray, General Secretary, reporting a conference with the Labor Sub-Committee of the Committee on Reconstruction and Development of the Dominion Government, which showed that steps were intended to be taken at once, to prepare a census of public works projects, whether under federal, provincial or municipal authorities, with a view to ascertaining the amount of labor they will absorb and the length of time during which there will be an opportunity to employ labor. This will be gone into still further upon the occasion of the forthcoming conference of provincial Premiers, in order to ensure, as far as possible, an even distribution of work, during the transition period. Any policies agreed to, upon that occasion, will be brought to the attention of municipal and other authorities throughout Canada and their co-operation will be invited.

The Labor Sub-Committee of the Government, it was stated, was also keenly alive to the desirability of having Canadian manufacturers standardize and specialize their products more and more. The diffusion of effort, which characterizes the present situation, was unquestionably one of the great weaknesses in our industrial life and one of

the most serious obstacles standing in the way of the development of export trade. By way of illustration, it is a common occurrence for one rolling mill in Montreal to be working in the morning on hexagons, while the other mill is working on flat bars, with the situation reversed in the afternoon, thus meaning that each plant has suffered the loss of time necessary to effect a change of rolls. By a system of pooling orders or specialized production, continuity of operation could be ensured for each plant.

The Sub-Committee of the Government also proposed, in conjunction with the Canada Registration Board, to arrange for what might be called an inter-departmental conference at an early date, so that the line of demarcation between the various administrative bodies will be more clearly defined, and also to avoid not only overlapping or duplication of effort, but the undertaking of tasks that would be in excess of the labor capacity of our country.

A memorandum of suggestions by the Dominion Government Labor Sub-Committee was submitted as follows:—

(1) That in future the attention of the Labor Committee be devoted mainly to questions of industrial reconstruction.

(2) That the provision and readjustment of employment in the after-war period is the most urgent task before the Committee.

(3) That an immediate census of public work projects of federal, municipal and other public activities be undertaken.

(4) That a conference with the heads of the Provincial Public Works Departments, together with the Federal Minister of Public Works, be arranged for an early date, with a view to concerted efforts for the direction and distribution of work in the transition period.

(5) That the situation be brought before the various municipal and other local authorities and their co-operation solicited.

(6) That a conference be arranged with the Canadian Manufacturers Association, and, if found desirable, with other employing bodies, with a view to ascertaining the possibilities of industrial development and readjustment to peace conditions.

(7) That a conference of the heads of the various departments concerned with demobilization be arranged, in conjunction with the Labor Committee, with a view to the clear definition of the work of each and their co-operation with the Committee.

(8) That a permanent Bureau of Reconstruction be established with an adequate staff, under the supervision of the Dominion Labor Committee.

It was stated by one members that we may safely assume that the end of the war will find Canada with a supply of labor largely exceeding the demand; that the main problem of reconstruction is the provision of employment for the labor surplus. The question the meeting had to consider was what can we, as manufacturers, do to meet the situation, or in other words how can we increase our demand for labor after the war? The question might be considered under two heads:—

(1) The home market.
(2) The foreign market.

While some attention was now being given to the consideration of export trade, nothing had, so far, been done for the home market. We should ask the Government to make a survey of imports in order that manufacturers might prepare to manufacture as many of these as possible. The manufacturers, themselves, could aid the Government by carrying out standardization.

Great attention must also be given to scientific and industrial research. The Government grant made was not adequate. The desirability of increasing the number of trade sections and extending their scope to deal with research, technical education and standardization of products, industrial relations and labor turnover must receive full consideration.

A discussion then took place on the expediency of a price-fixing commission. Such a commission should employ expert investigators who would command the confidence of both employers and the public.

The following were nominated as a Committee to draft a report conveying the feeling of this meeting to the Dominion Labor Sub-Committee and as delegates to the proposed conference with the Dominion Labor Sub-Committee at Ottawa:—

Major Anthes	Anthes Foundry, Ltd.
Geo. W. Watts	Canadian General Electric Co., Ltd.
Wallace Campbell	Ford Motor Co. of Canada, Ltd.
J. F. Stewart	McKinnon Building, Toronto.
Col. Miller	Polson Iron Works, Ltd.
M. R. Meldrum	Herbert Morris Crane & Hoist Co., Ltd.
John Firstbrook	Firstbrook Bros., Ltd.
Wills Maclachlan	Excelsior Life Building, Toronto.
Wm. Inglis	John Inglis Co., Ltd.
H. Champ	Steel Co. of Canada, Ltd.
H. Banfield	W. H. Banfield & Sons, Ltd.

Labor Conference at Ottawa

The following members of the Labor Committee were present at a conference with the Labor Sub-Committee of the Reconstruction and Development Committee of the Dominion Government in Ottawa on October 23:—T. P. Howard, C. Howard Smith and R. A. Jamieson, Montreal; Major L. L. Anthes, W. H. Miller, W. H. Banfield and Willis Maclachlan, Toronto; Henry Bertram, Dundas. Hon. Senator G. D. Robertson presided, and others present were Hon. T. W. Crothers, Minister of Labor; Tom Moore, president Trades and Labor Council; H. J. Daly, Toronto; Prof. R. M. MacIver, University of Toronto, and Calvin Lawrence. G. M. Murray, general secretary of the Canadian Manufacturers Association; H. Macdonald, assistant general secretary, and W. P. Hughes, secretary, Montreal Branch, accompanied the manufacturers.

On behalf of the Committee, a memorandum containing the views of the Association was presented by the General Secretary. General approval was given the suggestion that, in any plan of reconstruction, it would be to the advantage both of the labor unions, as representing labor, and of the employers, to strive to reach a common ground of action, and where employer and employee could agree, it was desirable that the ground should be cleared by so doing.

Professor MacIver suggested that they should go a step farther and ask for some means by which labor might take part in future conferences. Mr. Murray agreed that more progress could be made by getting around the table together. Mr. Moore, on behalf of labor, stated that at no time was it more appropriate that common ground should be reached.

Support was given to the view that schemes for the development of electrical energy in various parts of the country should be extended, and it was agreed that probably this could be done at less cost than we now pay for imported coal. In regard to industrial research it was felt that a more detailed plan was called for as part of any reconstruction scheme.

At the conclusion of the discussion, Senator Robertson thanked the manufacturers for their memorandum of suggestions and for their valuable contribution to the discussion of the various industrial problems mentioned.

Employment Management and Production

The New Employment Management is the Way Out from Industrial Chaos to Industrial Content—It is Revolutionary, but It May Save Our Country from Revolution —Proof in the Manufacture of Munitions that It Is the Sure Road to Production

By MARGARET K. STRONG

The author of this valuable article on the virtue of Employment Management as a solution of many of the difficulties arising between Capital and Labor, is in charge of the Hamilton Public Employment Bureau (Women's Branch). She is also president of the Hamilton Women's Business Club and a lecturer in the Department of Social Service, University of Toronto. The views expressed by Miss Strong in this article are not meant necessarily to represent those of the latter Department.—Editor.

THE new employment management stands out to-day as a sign of the times. Pressed on the one hand by problems of labor and industrial unrest, and on the other by the universal demand for increased production, the administrator of any business enterprise has problems which must be faced. They demand a solution and the trend of modern thought is to find that solution in a new attention to the human equation, particularly through expert *Employment Management.*

We want production. We want it now, and we will want it much more when the war is over, and the standard of life which labor has learned to demand, can be maintained only if there is a manufactured output sufficient to maintain it. In our anxiety we ask, Is there now any one industry which has already succeeded in getting this maximum production we talk of? Can we learn from it? The answer is *Yes;* we can learn from the manufacture of munitions. To quote Mr. Arthur Gleason: "It was the making of shells which taught England the new synthesis of *capital* and *labor.* Suddenly she was forced to turn out huge quantities of a product in order to save the lives of her people. Under that tragic pressure she had to learn over night how to get a large product. And swiftly she found the solution."

The new synthesis of *Capital* and *Labor* was accomplished when capital came forward with its living wage, decent working conditions and limited hours of labor, and met from the side of labor, efficiency, the use of machinery to capacity, no restriction of output, no sabotage. The result was production on an unprecedented scale. Inspired by an ideal, which belonged alike to employer and employee, their common nationality, the makers of munitions, no longer servile laborers but fellow-citizens delivered the goods.

In this experience we may learn the solution of the human equation upon which production depends. The business manager who is up-to-date has found that he is dealing, not with "hands," but with heads and with hearts. He is studying his employment problems and perhaps bringing in an expert to reorganize methods and manners.

In the United States, the demand for these reforms is leading to one of the greatest movements in the manufacturing industry of the country. The Employment Management Division of the War Industries Board is now conducting courses of study open to business leaders and in co-operation with the universities of Boston, New York, Rochester, Pittsburg, Seattle and Berkeley. They are taking industrial problems seriously and see their solution in a new point of view, a new efficiency.

In Canada, unfortunately, less has been done to prepare us for the coming change. The need for the serious study of industrial problems is no less urgent here, and the demand for trained employment managers, supervisors, and welfare workers is growing. This opens up a new occupation for training in which scarcely any provision as yet exists. It may be said that a beginning is being made here also, as for example in the courses on industrial relations, industrial investigation, the employment of women in industry, etc., which are now being offered in the Department of Social Service of the University of Toronto. This is one of the various ways through which a more thorough understanding of industrial problems can be attained, and a certain amount of training, to be supplemented by practical experience in factory or store, given. These courses are available for all who are interested, and provide an opportunity for instruction in and discussion of problems which concern us all.

Take the simple (?) process of hiring—you know how it used to be done—and is being done still in many places where there is little excuse. When men are plentiful, the foreman has a job to sell; when men are scarce, he is willing to take anyone. Result: no permanency, no loyalty, no satisfaction. With an expert employment manager in charge, conditions become different. The principle back of the new management, which we have assurance is getting results, may vary in detail, but we note a few of the most permanent:

1. A genuine and convincing personal interest at the time of employing and throughout.
2. A practical vocational guidance.
3. A medical examination which is not a farce.
4. A real industrial training—every man encouraged to know and do more.
5. A wage system which recognizes a decent standard of life and which encourages efficiency and progress.
6. Safety first, hygiene and sanitation taught and practised from above as well as below.
7. Co-operation.

Here are seven general principles, but the seventh is the spirit of them all. Whether this co-operation is leading toward a special shop management or not, time will tell. Certain it is that work people must have in the future a greater opportunity for participating in the discussion about and adjustment of the matters immediately related to their work. This opportunity may be provided by Joint Industrial Councils as recommended in the Whitley Report to Lloyd George. Or it may mean shop committees of one kind or another. Certainly it means organization; absolutely it demands an avenue for the self-expression of the employee; just as truly it allows for the presentation of the case of the employer. Not capital versus labor, but each better for knowing the claims of the other, and both working for a common humanity, the well-being of all. This is what the successful business manager must make not only his ideal, but an accomplished reality. The new employment management is the way out from industrial chaos to industrial content. It is revolutionary, but it may save our country from revolution. We have the proof in the manufacture of munitions that it is the road to production.

Export Trade Delegation's Visit to the Capital

Successful Interview with Cabinet on October 29th

CARRYING out the decision arrived at by the Export Committee at its meeting on October 17th, a representative delegation of Canadian manufacturers was arranged. The delegation proceeded to Ottawa to meet the Prime Minister and the Cabinet. Great interest was evidenced in the subject of export trade because so many thoughtful people are gravely concerned as to how employment will be found for Canadian workmen and how markets will be found for Canadian products to keep this country in the same relative position with regard to exports as she is now when such large quantities of goods are being sent over for war purposes.

There was a full attendance of the Cabinet, and Sir Robert Borden, the Prime Minister, presided. A number of speakers spoke for the manufacturers and business interests, pointing out the necessity for an organization on a national scale which would be put into force through the co-operation of bankers, farmers, workmen and all other business interests. It was suggested that a joint conference should be held of bankers, manufacturers, agriculturists, workmen and all other interests, together with representatives of the Cabinet, to go into the whole matter. The Prime Minister, in the course of a lengthy and cordial reply to the representations of the delegation, proposed that the manufacturers arrange a committee, including all these interests, and then communicate with the appropriate Government Committee to decide on a course of action.

In discussing the question with the Government, it was pointed out that practically every other nation of commercial importance is taking some steps to assure the development of export trade. It was pointed out that it would be necessary to provide employment for many workmen, and that unless we produced large quantities of goods to sell at a profit, our trade balance would go against us and there would be the danger of great accumulation of debt charges. The necessity of increasing the facilities at present operating, to enable manufacturers to have prompt and specific credit information about prospective overseas customers, was enlarged upon, and many other facilities of assuring settlements in case of financial difficulties had to be looked into.

Lyons Fair Described

The delegation returned to an adjourned meeting after visiting the Cabinet, and heard a description of the Lyons Fair for 1919. It was explained that this was a sample fair at which exhibitors must be represented by salesmen ready to do business. The international interest of this Fair is shown by the fact that in 1916 there were only 147 firms from allied and neutral nations, while in 1918 the number had reached the neighborhood of 1,200, and the total number of exhibitors had increased from 1,500 in 1916 to 4,800 in 1918. Despite the increasing importance of this Fair, which may be judged from the fact that in 1917 business to the amount of $150,000,000 was transacted, Canada was only represented by two exhibits. For next year the Department of Trade and Commerce have agreed to take 30 booths, 5 of which will be looked after by the Department itself for the exhibition of natural products or manufactured products made therefrom. It is anticipated that the other 25 booths will be filled to create an attractive Canadian avenue by representative manufacturers or groups of manufacturers whose production in Canada is on a competitive basis with that of other export countries. The Government defrays the cost of rental and the cost of transportation from tidewater to Lyons, the manufacturers' share of the expense being the cost of samples and the payment of their sales representatives. In addition to this there may be a small contribution levied on the manufacturers for overhead expenses incident to a co-operative exhibit. It is also intended that these samples will be transferred to Milan, Italy, and finally to London, where a permanent exhibition may be arranged.

Some discussion followed the outline of this plan, and the Chairman announced that it would be a pleasure for this committee to co-operate. In the subsequent discussion, mention was made of the difficulty of getting suitable representation. It was pointed out that this might be overcome by handling the matter through the Export Association, which can offer sales representatives, who are able to speak French and are otherwise equipped to adequately represent Canadian manufacturers. One of the previous exhibitors expressed his satisfaction with their experience, stating that they received splendid information as to the needs of export markets and can trace many subsequent sales to that source.

Sample Train for France

Senator C. P. Beaubien then made a most eloquent appeal for support of the movement in favor of having a train showing goods made in Canada make a tour of France, the offer of the French Government still holding good for the provision of cars and free railway transportation. At the conclusion of the Senator's speech, it was moved that the project of sample trains for France be endorsed and forwarded by all the means in the power of the Export Committee, and that the matter be taken up with the Government Committee when the conference takes place.

On the resumption of business at 2.30, some additional points were brought out that should be considered by the Export Committee. Opinions were expressed that an effort should be made to get an immediate improvement in the ocean shipping facilities for Canadian exporters. The question of getting preferential tariff arrangements with other overseas dominions was touched on, and the necessity of getting steamers of Canadian register to carry Canadian goods. The importance of giving thorough study to these and all other questions connected with export trade was deeply emphasized, and it was urged that the Committee should meet as frequently as possible to insure action being taken.

Building a Model Village

Dominion Steel Products Co. at Brantford Erecting Houses in Lansdowne Park

The plans of the Dominion Steel Products Co., Brantford, having in view the erection of a model village to be available for its mechanics seeking residence, are fast approaching realization, according to a report appearing in *Canadian Machinery*. In Lansdowne Park, a very desirable section not far from the company's plant, quite a number of houses are in course of erection—several, in fact, approaching completion. The houses are in every sense substantial. They are of concrete foundation, and built of hollow tile covered with stucco. The idea uppermost in many undertakings of this kind, when industrial concerns have sought to solve the housing problem—when the houses are much of the same type, with little thought of permanency, comfort, or attractiveness to the home builder—is here conspicuous by its absence.

The Dominion Steel Products Co. are at present engaged entirely on war work. After the war this huge plant will be organized as a permanent industrial concern.

Activities of the Montreal Branch

By W. P. HUGHES
Assistant Secretary Montreal Branch

SEVENTEEN applications for membership in the Association have been received by the Montreal Executive Committee at their September and October meetings. They were unanimously approved of and forwarded to the Central Executive with the recommendation that they be accepted. The applications thus received were:

The Birch Press, Montreal.
J. F. Clark, Limited, Montreal.
Dominion Carriage Company, Ltd., Montreal.
Dominion Copper Products Company, Ltd., Montreal.
Imprimerie Modèle, Montreal.
Imprimerie du Messager, Montreal.
E. A. Mahon, Jr., Montreal.
The Mason Regulator and Engineering Co., Montreal.
Printers Limited, Montreal.
The Regal Press, Ltd., Montreal.
Smardon Shoe Company, Montreal.
Wm. Henry White, Montreal.
Armstrong Whitworth of Canada, Ltd. (L. Russell, 2nd Rep.), Montreal.
The Miner Rubber Co., Ltd. (T. Y. O'Neil, 2nd Rep.), Montreal.
La Fonderie de L'Islet, L'Islet Station, Que.
Owens Lumber Co., Ltd., Monte Bello, Que.
Wm. Henry Stacey, Lake Megantic, Que.

The October meeting of the Branch Executive was held in the Canada Club, Montreal, on Thursday, October 24th, Mr. C. Howard Smith, chairman of the branch, presiding, and there were present: Mr. T. P. Howard, Vice-President of the Association; Messrs. B. W. Coghlin, Wm. Rutherford, F. W. Stewart, Chas. E. Frosst, A. D. Huff, H. E. Moles, Art. Harries, Col. W. J. Sadler, Geo. A. Slater, Michael Hirsch, W. A. Desbarats, S. W. Ewing, F. G. Daniels, S. J. B. Rolland, Ferd. Van Bruyssel, J. H. Sherrard and R. E. Jamieson.

The chairman welcomed Mr. F. G. Daniels of the Dominion Textile Company, Ltd., to this his first meeting as a member of the Executive Committee. Mr. Daniels succeeds Mr. N. R. Feltes, who had been forced to resign from the executive owing to his removal to the United States.

Municipal Commercial Intelligence Bureau

The need for some adequately equipped Municipal Commercial Intelligence Bureau has long been felt by the local branch. There are many difficulties in the way of providing the service through the Association office, partly owing to the fact that large numbers of maps would be needed showing the different available factory sites, together with data as to conditions, prices, etc., in individual cases, partly due to lack of transportation facilities for conducting prospective buyers on tours of inspection, and partly due to the drain that such work would prove on the time of the office staff.

Assistance has been rendered by the Association in the past where such was possible, but the need for some more adequate and consistent means of acquainting the prospective manufacturer with local possibilities and conditions, both physical and legal, is pressing.

This matter was the subject of study on the part of the Municipal Affairs Committee some time ago, when conferences were held with the various Montreal public bodies, including La Chambre de Commerce, the Builders Exchange and the Trades and Labor Council, with a view to drawing up recommendations, subscribed to by all, which would be presented to the municipal authorities in the form of a petition. At that time certain difficulties were met with which delayed the desired action, but the effort has been revived and the Executive Committee has authorized the Branch Municipal Affairs Committee to take action if a plan could be worked out upon the proper basis.

The Municipal Affairs Committee also reported upon the work which had been done in co-operation with the City Health Department in combating the spread of Spanish influenza. This report stated that some 1,100 English and 900 French circulars had been distributed among the branch members, pointing out the danger and suggesting steps which could profitably be taken to protect the employees. It also told of supplying information to the City Health Department, which had, no doubt, influenced that body in refraining from enacting drastic regulations as to the opening and closing hours of factories.

The Influenza Epidemic

A resolution was unanimously passed by the Executive Committee paying tribute to the energy and wisdom which had characterized the efforts of the Montreal Board of Commissioners and the Local Board of Health in fighting this epidemic.

In the absence of the Chairman of the Branch Legislation Committee, the secretary outlined what had been done with reference to the proposed change in the administration of the Quebec Commercial Corporation Tax Act in regard to companies, a minor part of whose capital only was employed within the province.

Under the provisions of this Act all incorporated companies carrying on business in the province are required to pay an annual tax of one-tenth of 1 per cent. upon their total paid-up capital, it being provided however, that in the cases mentioned above the Lieutenant-Governor in Council may allow such reduction of taxes for a fixed or undetermined period as he may deem just. For a number of years individual companies desiring to secure a reduction under this clause have made their claims for such to the Provincial Tax Collector, who, on his own authority, has adjusted the matter. The Provincial Secretary, some months ago, instructed the Provincial Tax Collector to cease making such arrangements. This was done in order that the law might be administered according to the terms of the Act. He then proceeded to prepare a questionnaire, which companies desiring a reduction were asked to fill out in order that the Government might have data upon which to judge their individual cases.

Commercial Corporation Tax

A strong delegation, in which the Montreal Board of Trade joined with the branch representatives, waited upon the Provincial Secretary, Hon. Mr. W. G. Mitchell, with a view to obtaining from him a frank statement as to the intentions of the Government in this connection. Mr. Mitchell most courteously received this delegation, first outlining the situation as it has been stated, and then explaining that the change in administration would mean that in future, companies desiring a reduction would have to justify such in accordance with an Order in Council which would be passed at an early date. As a basis for such reductions, three things are, it appears, to be taken into consideration. First, the amount of stock which it subscribed within and outside the province; second, the assets of a company within and outside the province, and third, the revenues obtained within and outside the province.

Mr. Mitchell was careful to explain that he had no intention whatever of imposing any dual taxes upon any company, and that every consideration would be given to a case where

taxes were paid upon capital employed outside the province. He also was careful to intimate that it was Quebec capital whether subscribed or operating within the province, which would be taxed.

The members of the branch delegation who were present at this interview were: Messrs. G. F. Benson, Chairman of the Branch Legislation Committee; Lorne Webster, H. M. Jacquays, F. B. Whittet, T. P. Howard, A. H. Brittain, Wm. Rutherford and the Secretary, Mr. W. P. Hughes.

Further developments will be followed most carefully by the committee, and future consultations with the Government will no doubt result.

On October 23rd, Messrs. C. Howard Smith, T. P. Howard, R. E. Jamieson and the secretary, joined in a delegation to Ottawa when the members of the Labor Sub-Committee of the Development and Reconstruction Department of the Dominion Government were interviewed.

Messrs. C. Howard Smith and T. P. Howard reported on this interview, expressing their keen appreciation of the courteous manner in which they had been received.

Among other important results of this delegation was the contemplated meeting of representatives of the C.M.A. with the Executive of the Trades and Labor Council to study the question of joint representations to the Dominion Government with reference to labor conditions after the war. The following were appointed a special standing committee to continue the study of this most important matter: Messrs. R. E. Jamieson, F. G. Daniels, Geo. A. Slater, B. W. Coghlin, Lieut.-Col. W. J. Sadler and C. Howard Smith, with power to add to their number.

Educational matters, especially local conditions, have been receiving the serious attention of the branch executive. The possibility of a provincial compulsory school attendance law, the salaries paid school teachers in the City of Montreal, the question of scholarships and supervision of the employment of graduates, are among those which the executive feels should be the subject of concentrated study. In order to carry on this work the following were appointed a committee: Messrs. Lieut.-Col. W. J. Sadler, Michael Hirsch and B. W. Coghlin.

Arrangements are under way for a fall general meeting of the branch, which will be held some time in November. It is the intention of the Branch Reception and Membership Committee to secure, if possible, a speaker whose presence will ensure a record attendance.

The branch is looking forward with pleasure to having the members of the executive council meet in Montreal on November 14th, when they will hold in this city their regular monthly meeting. The visiting members are to be the guests of the local executive for luncheon on that occasion.

Activities of the Prairie Provinces Branch

By G. E. CARPENTER
Assistant Secretary, Prairie Provinces Branch

OWING to the ban upon meetings, the business of the Branch has been conducted by correspondence. Only two meetings of the Executive Committee have been held during the month.

Labor Committee

The various sections of this Branch were invited to send delegates to a meeting of the Labor Committee of the Association held in Toronto on October 7th. Unfortunately, for various reasons, it was impossible for Western members to avail themselves of this invitation. But, on their behalf it was urged that the Committee should impress upon the Government the necessity of providing encouragement for the creation of facilities for the manufacture of all articles that can be made in Canada for home consumption, and which have formerly been imported into Canada; also for the manufacture of articles for export for which Canada's resources provide the raw material.

Amendment Military Service Act

The attention of members is directed to an amendment of October 12th to the Military Service Act, quoted below, which makes it expensive for an employer to have in his service a man who is a deserter, or absent without leave from the Canadian Expeditionary Force:

106. Every person who employs or retains in his service any man who has deserted or who is absent without leave from the Canadian Expeditionary Force, or who is in default in the performance of any obligation or requirement for reporting or for military service, imposed upon him by the Act or regulations, or any proclamation thereunder, shall be guilty of an offence punishable on summary conviction by imprisonment not exceeding six months, or by a penalty of not less than one hundred dollars and of not more than five hundred dollars, or by both such imprisonment and fine, unless such person prove that he made due inquiry and that the military service papers issued by the registrar or the military authorities to the man so employed or retained in his service were produced for his inspection, and that it was reasonably established to his satisfaction by such inquiry and papers that the man was not a deserter or absent from the force without leave, or in default in respect of any of the obligations or requirements aforesaid.

Meat Hooks in Refrigerator Cars

Mr. J. E. Walsh, manager of the Transportation Department, advises that the Canadian Railway War Board has notified the Association that the Canadian railways propose to discontinue to furnish meat hooks for use in refrigerator cars. Before doing so, however, they have requested the Association to take the matter up with interested shippers. Members in Western Canada have been communicated with and their objections will be registered with the Canadian Railway War Board by Mr. Walsh, as soon as a meeting can be arranged for this purpose. In the meantime the Canadian Railway War Board has been requested to postpone action until the views of shippers are placed before it.

Are You Using the Branch?

That the Association can be of service to its members is demonstrated by the extract quoted below from letter received by the Branch during the month. Needless to say, this letter was greatly appreciated:

We would like to take this opportunity of thanking you for your interest in our behalf. We consider the Canadian Manufacturers Association the most useful organization to which we as a firm belong, and quite apart from the pleasant fraternal side of the Association, we consider that from the merely financial standpoint, our membership has been a mighty good investment.

Milling in Transit

Canadian railways filed with the Board of Railway Commissioners tariffs increasing the stop-over charge for milling or cleaning grain in transit from 1c. to 2c. per 100 lbs., effective November 1st. At the request of the Manager of the Trans-

portation Department, Mr. J. E. Walsh, members of this Branch interested in this business were communicated with and a meeting was held in Winnipeg on October 17th, when a long letter of protest was drawn up and dispatched to Mr. Walsh, with the request that everything possible be done to prevent the increase becoming effective. Shippers interested in this rate were amazed that after receiving increases in rates under what is commonly known as the 25 per cent. case, but which in the case of grain and grain products yields increases running as high as 40 per cent., that the Canadian railways should seek to further increase such revenue by an advance of 100 per cent. in the stop-over charge. This case will be heard at Ottawa on October 29th, when members will be represented by the Manager of the Transportation Department.

Recent Activities of the Maritime Branch

By H. R. THOMPSON
Assistant Secretary, Maritime Branch

A MEETING of the Executive Committee of the Maritime Branch, Canadian Manufacturers' Association, was held at Amherst, N.S., on Tuesday, October 1st, at 2.30 p.m., in the Marshland's Club Rooms. The following members were present: W. S. Fisher, Chairman; Messrs. C. M. Crockett, A. G. Robb, W. D. Piercey, G. C. McAvity, C. S. Sutherland, Angus McLean and W. A. Christie. The following matters received the attention of the committee.

Fall Convention

It was considered inadvisable to attempt to hold the convention before or during the Victory Bond Campaign. After considerable discussion the date agreed upon was December 4th, which would give those assisting in the Victory Bond Campaign time to straighten out the work in their offices before coming to the convention. As the annual meeting was held in New Brunswick, it was considered advisable to hold this convention in Nova Scotia, and as a central point is desirable, from the standpoint of attendance, Amherst was decided upon as the place.

A suggested programme was outlined and the secretary instructed to endeavor to secure the following speakers:

Sir John Willison—Reconstruction Problems.
Watson Griffin—Possibilities for Industrial Development in the Maritime Provinces.
Representative from Commission of Conservation—Canada's Fire Waste.
K. H. Smith—Progress of Survey of Maritime Water Powers.
Industrial Education—Professor F. H. Sexton.

Services Rendered by Insurance Department

The secretary submitted for the consideration of the executive committee a letter from the assistant general secretary, to which was attached a letter from "Willis, Faber Company"—regarding the extension of certain services, of the insurance department, to the more distant territories such as the Maritime and the Western Provinces.

The secretary explained to the committee that this discussion was occasioned by a paragraph in the booklet of "Facts" published by the Association, and under the heading "Insurance Department"—reading as follows: "Risks are inspected and improvements suggested with a view to reduction in rates."

During the conference of secretaries at Toronto in the month of June last, the insurance department was asked if it was in a position to render this service—that is, inspect risks in the Maritime and Western Provinces. The answer was in the negative. The secretaries then suggested that either the service be extended or that this clause in the booklet of "Facts" be altered.

Time would not permit the full discussion of this subject but it was the opinion of the committee that the insurance problem is now a very live and important one, considering the general increase in rates, and that if the Association could in any way render extended service to its members in this regard it would indeed be gratefully received. This subject will receive further consideration by the executive committee at a later date.

Canada's Fire Waste

The fire waste in Canada has reached such alarming proportions, it was decided, after some discussion, that the following resolution should be adopted:

"Whereas, it is now generally recognized that Canada's Fire Waste is a serious drain on our National Wealth and Resources, and that it is conceded that something must be done, in an efficient and comprehensive way, to check these enormous losses, for the payment of which we are all contributing either directly or indirectly.

"Therefore, be it Resolved, that all commercial organizations in the Maritime Provinces be requested to earnestly consider this important problem and after full discussion to embody in a resolution their opinion as to the best ways and means of preventing the origin and spread of fires in the Maritime Provinces.

"Further Resolved, that these organizations be requested to submit a copy of their resolution to their respective Provincial Premier for his consideration, and also to favor the Maritime Branch, Canadian Manufacturers' Association, with a copy for its guidance when discussing this subject at a general conference which it intends to hold in Amherst, early in December, and at which time and place the Commission of Conservation has agreed to have a representative give an address on this subject."

Shipments to Newfoundland via North Sydney

There is an unusual opportunity at the present time for Canadian manufacturers to do business in Newfoundland, particularly in competition with the United States, and if a satisfactory transportation service could be arranged there is no reason why we should not secure a foothold in that market that will enure to our benefit after the war. However, this will not be possible unless there is a decided improvement in the service rendered. During the last few years the exporters have experienced many delays in trans-shipping at North Sydney for Newfoundland.

The secretary of the Maritime Branch, upon instructions from Mr. J. E. Walsh, Manager of the Transportation Department, visited North Sydney to look over the conditions there and found that the siding and storage accommodations were inadequate and the wharves very much in need of repairs. Mr. Walsh has already made representations to the Government officials in this connection and we are looking for immediate improvements in the facilities afforded there for trans-shipping.

Technical and Commercial Education

During the Annual General Convention, held at Montreal in June last, Mr. W. S. Fisher, Chairman, Maritime Branch, suggested that the Federal Government should be memorialized regarding a National System of Technical and Commercial Education. Mr. Fisher was requested to prepare a

resolution, and the following was submitted to the executive committee for its approval.

"Whereas, the development of widespread technical and commercial education on a scale commensurate with our growing population, and our increasing manufacturing and commercial interests, is a pressing need in Canada to-day;

"And Whereas, the schools have not kept pace in all respects with the changes in the social and economic structure of society.

"Therefore, be it Resolved, that the Canadian Manufacturers' Association, in annual meeting assembled, record its conviction that the Association continue to urge upon the Federal Government and the Provincial Governments the imperative necessity of the development of the plan for a more efficient system of Technical and Commercial Education, as outlined by the Royal Commission.

"Further, Resolved that, a small committee be appointed with representation from every Province in Canada to urge upon the Federal Government the necessity of immediate action on their part in this matter by the granting of Federal financial aid to the Provinces or any other aid that they think desirable and also that Provincial Branches of our Association be requested to appoint a similar committee for each Province to take this matter up with each Provincial Government in Canada requesting that they take immediate steps to develop this most important public service and urging them to request the Federal Government for financial assistance for this subject."

The Secretary of the Maritime Branch has since received a communication from the assistant general secretary, advising that it is the opinion of the central executive that at a time when the energies of the Government are necessarily concerned with matters of more immediate importance, it would be wise to delay taking the action called for by the resolution.

The members of the Maritime Branch Executive regretted very much, considering that other nations are, even during the war, energetically organizing and preparing for the after-the-war competition, that the Canadian Government is not in a position to give the necessary attention to such an essential problem. It was the opinion that any further delay, in this connection, would increase the handicap under which our industries are working, as compared with the assistance being given by the Governments of other nations to their industries.

Nova Scotia Workmen's Compensation Act

During the last session of the Nova Scotia Legislature it was intimated that the employers under the Nova Scotia Workmen's Compensation Act would be given an opportunity, if desired, to review the provisions of this Act with the Law Committee of the House, before the next session. In view of this, the Secretary of the Maritime Branch, Canadian Manufacturers' Association, was instructed to request the Central Executive to have the Association's Solicitor, Mr. Wegenast, outline any desirable changes and offer his comments thereon. The central executive granted the request and the memorandum of suggested changes has been received. The secretary of this branch has been instructed to submit this memorandum to the branch legislative committee for its consideration and action.

New Brunswick Legislative Committee

The secretary reported a vacancy on the New Brunswick Legislative Committee, due to Mr. J. B. Cudlip, of St. John, having removed to Montreal. A motion was made by Mr. Sutherland, seconded by Mr. Piercey, that Mr. Angus McLean be appointed to fill the vacancy. The motion carried. Mr. McLean stated his willingness to act in this capacity.

The members of the executive committee considered it advisable to appoint a committee to discuss the question of Safety Associations in New Brunswick, under the Workmen's Compensation Act. The following committee was appointed: Messrs. L. W. Simms, Angus McLean and G. C. McAvity.

Trade Sections

The secretary explained the conditions which led up to the formation of a "Maritime Canned Fish Section" and outlined the work already carried on. This section is now in first-class working order and considerable has already been accomplished towards stabilizing this industry. The formation of sections for the "Box Manufacturers" and "Flavoring Extract Manufacturers" is now under consideration.

New Brunswick Vocational Education Committees

It was considered advisable to have a Vocational Education Committee appointed for Campbellton, to co-operate with the Provincial Government officials towards the promotion of vocational schools in that district, and a motion was made and carried that Messrs. J. Harquail and F. M. Anderson be requested to act as such a committee.

P.S.—Since the executive meeting it has been found necessary to change the date of the convention to December 11th, instead of December 4th.

Safety Associations Proposed for Nova Scotia

Mr. Dennis, Chairman of the Committee to promote Safety Associations in Nova Scotia, and the Secretary of the Maritime Branch waited on the Nova Scotia Workmen's Compensation Board, on the afternoon of October 4th, to discuss the formation of such associations. The chief feature to receive consideration was whether it would be advisable to form an association for each group or class under the Act or to promote one association with "sections" or "committees" to take care of a particular branch of industry. After full discussion it was decided that the latter method would probably be the better for Nova Scotia considering that the number of industries in some of the groups would hardly warrant a separate organization.

The question of a bulletin service was also discussed, and it was agreed that such a service would materially assist in the accident prevention work, as the reduction of accidents depends largely upon education. It was suggested that possibly the necessary bulletins could be procured in bulk from the National Safety Council, and the Secretary of the Maritime Branch was requested to write the council in this connection.

It was decided to call a meeting of the employers under the Act at an early date in an endeavor to get the association under way, but such meetings are now prohibited on account of the epidemic of influenza.

Canned Fish Section

A meeting of the Executive Committee, Maritime Canned Fish Section, was held in the Board of Trade Rooms, Halifax, on Friday morning, October 4th, at 9.15, to discuss what action should be taken when meeting the Hon. C. C. Ballantyne, Minister of Marine and Fisheries, at 10.30 a.m.

The first matter considered was the new seasons for the lobster fishing, which regulations were published in the press that morning and the previous evening. These regulations were practically the same as those agreed upon at the conference of lobster men held at Halifax on August 7th, and which were submitted to the Government officials the following day, for their consideration. As the Minister of Fisheries

saw fit to adopt the recommendations of those engaged in this industry, it was agreed that an expression of gratitude should be extended to him for his co-operation in this connection.

The question of the enforcement of these regulations was then discussed, and it was decided to impress the Minister with the necessity of having honest and capable overseers and inspectors, which was not the case, in some districts, in the past.

It was also decided to suggest to the Minister the appointment of an independent commission of experienced and capable maritime men to superintend the work of the Fisheries Department in the Maritime Provinces.

Committee Meets Minister

The executive committee waited on the Minister at the Halifax Hotel at 10.30, and was very cordially received. The Chairman of the "Section," Mr. F. Magee, extended the expression of gratitude to the Minister for the adoption of the regulations as recommended by the lobster men. Mr. Magee emphasized the necessity for the proper enforcement of the regulations and also drew attention of the Minister to the fact that an amendment had been made to the "Meat and Canned Foods Act" requiring that the respective sizes of lobster cans shall contain more dry meat than can possibly be put in them, and asked that this be rectified without unnecessary delay. Mr. Magee also suggested that the Minister give his consideration to the question of appointing an "Independent Commission" to administer the fisheries regulations in the Maritime Provinces.

Col. A. King, who accompanied the committee, offered his opinion that we had not yet gone far enough in the way of conservation and emphasized the necessity for the protection of the male and female breeding lobsters.

Inspectors under Political Manipulation

Mr. O'Leary stated that in the past, the inspectors were more or less under political manipulation and that therefore the regulations were not being enforced.

Mr. Tidmarsh suggested the formation of a permanent organization, along the lines of the North-West Mounted Police, to enforce the regulations, such a body might be known as the "Naval Police," and members to receive their appointment through capabilities instead of through political influence. He also suggested that the fisheries regulations be made by statutory enactments instead of as at present, merely regulations of the Department and open to political exigencies.

Change in Fishing Season

Mr. Neville informed those present that a petition was being circulated among the fishermen along the west coast of Nova Scotia, asking that the fishing season, for the district from Yarmouth to Halifax, be from November 15th to January 15th, and from April 1st to June 1st. The change to admit of them taking advantage of a possible increase in remuneration due to the usual increase in market price during the winter season.

Mr. Ballantyne thanked the delegation for the interest and co-operation evidenced by freely discussing this problem with him and stated that possibly there had been too much politics mixed up with the drafting and enforcing of the fisheries regulations in the past, but that he would endeavor to have the work conducted in a business-like manner while he has oversight of the Fisheries Department. He solicited the continued co-operation of the committee and stated that he was open to receive further suggestions at any time. He requested that he be notified if there was reason to believe that any officer of the Department should be replaced. He suggested that a conference, of the officials of the Department with those engaged in the industry, be held more often than in the past.

Reorganization of Civil Service

The Minister stated that the Civil Service Act of the last session provided for a complete reorganization of the outside service by the Civil Service Commission. Such reorganization is now receiving the attention of the Commission. Before the opening of the lobster fishing season, this year, the Minister directed that every precaution should be taken to afford the fishery the full protection contemplated by the regulations, and even pending such reorganization, should any officer be found to have failed in carrying out his instructions, as far as conditions would permit, his services will be promptly discontinued. A short time ago information reached his Department that illegal fishing had been carried on in certain districts and this matter is now being carefully looked into.

Conferences on Hydro-Electric Power Shortage

Three Important Meetings Held by Toronto Branch to Discuss with Sir Henry Drayton and Sir Adam Beck a Serious Situation

HYDRO-ELECTRIC power problems have been prominently before Toronto and Ontario manufacturers during October. Early in the month a sudden shortage of power developed which occasioned a good deal of loss and inconvenience, and led the Toronto Branch of the Association to take active steps to secure relief.

A meeting of the Branch was held on October 15, to discuss the situation, Sir Adam Beck, Chairman of the Ontario Hydro-Electric Power Commission being present. Sir Adam, who addressed the meeting at length, explained that the reasons for the shortage were:

(1) The use of electricity for heating and similar purposes as a result of the fuel shortage; (2) The orders of the Ontario Railway and Municipal Board cutting out the use of natural gas for manufacturing purposes; and (3) The large increase in power consumption because of orders for war munitions placed through the Imperial Munitions Board.

At a subsequent meeting of the Branch on October 18, Sir Henry Drayton, Power Controller, was present. Sir Henry reviewed the whole situation, intimating that his powers as Controller were confined to the private companies and did not extend to the Hydro-Electric Power Commission. He, however, recognized the seriousness of the situation and intimated that he would endeavor to get the United States authorities to release some of the power now being exported.

A further conference, at which representative manufacturers from all over the Province were on hand, was held in the Association's offices in Toronto, on October 31. Both Sir Henry Drayton and Sir Adam Beck attended. Sir Henry reported that he had been unable to get any concessions from the United States. However, as a result of this first get-together meeting, the prospects are that the power situation will be much improved in a comparatively short time.



The Administration Buildings

To the left is the boarding house for foremen; in the centre the office building, and to the right the staff club house

Canada's New Nickel Refining Industry

After Years of Agitation and Argument, a Refinery to Handle the Nickel Matte of Copper Cliff is at Last in Operation at Port Colborne—Some Features of this Interesting New Industry which has Sprung Up as it Were in a Night

By E. F. LAMBERT

ON the fifteenth of September, nineteen-eighteen, the first production in Canada of refined nickel was made. The event marked the culmination of a two-year construction and equipment programme at Port Colborne, Ontario, by the International Nickel Company.

The company's name is a household word in Canada as the result of wide-spread interest in the refining as well as the mining of our vast nickel deposits. The published report of the Nickel Commission, whose exhaustive findings were made the basis of legislation encouraging the establishment of a Canadian refinery, also brought the company's name prominently before the public.

Will be Great Industrial Asset

For the purposes of this article the outstanding feature is not the influence exerted to secure the refinery but the fact that a new Canadian industry has been launched—an industry which in the next ten years (according to expert opinion) will be the country's leading industrial asset.

When the Port Colborne plant commenced operations on the 1st of July, the management expected to tap the first nickel in six weeks. Machine trouble delayed progress, but now each day sees from 25,000 to 30,000 pounds of nickel, and half as much copper, turned out. The copper is not completely refined, but is shipped to Bayonne, N.J., in the "blister" state for electrolytic treatment. This process extracts the gold, silver, platinum and one or two other precious metals embodied in the original nickel matte. The Canadian plant may eventually handle this work also.

Approximately 25% of the mining and smelting division's product is now being handled by the Port Colborne refinery. In other words, three-quarters of the total output of the smelters in the Copper Cliff district is shipped to Bayonne. That these proportions are not permanently designed is evidenced by the immensity of the Canadian plant. Space which will permit the doubling of the refinery's capacity has been allowed in every department. The perfection of detail which is bound to come in the next few months will naturally bring about a material increase in output, and one can readily conceive that in the not too distant future the entire product of the mines will be taken care of at Port Colborne.

Though situated at the mouth of the Welland Canal, all supplies so far have been received by rail. As practically all refining material and coal is imported from the United States the freight and duty bills are a big item. Strange it seems, and yet the general manager assures us of the fact, that special duties on cargoes across the lake have made the rail method more economical than water transport. The nickel matte is also shipped from the smelters by rail. Transportation is a matter which suggests possible economies and the nickel people are making a careful study of the problem.

It is fortunate that the great bulk of workers at the new refinery are recruited from the class of unskilled labor. Were it not so, the problem of manning the plant would be much more difficult than it is. Approximate percentages give the nationalities on the pay roll as Canadians, 36; Austrians, 18; Italians, 11; Russians, 9; English, 6, and the balance Americans, Scotch, Roumanians, Greeks, Servians, Syrians and Chinese. This is from a total roll of 472. The capacity roll is 525.

The company has 300 acres at Port Colborne, 70 of which are enclosed. In the enclosure, 26 acres are covered by plant buildings.

Welfare Work Prominent

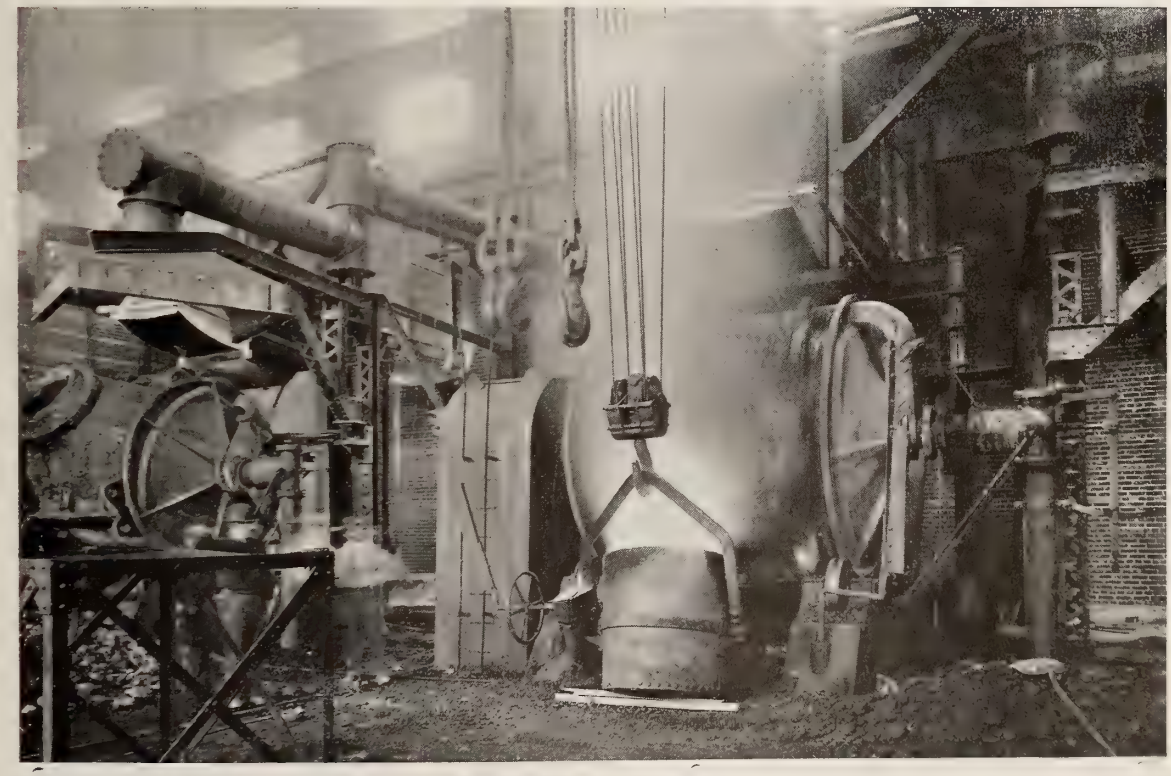
One of the striking features of the Port Colborne institution is the manifest thought given to the social and domestic welfare of the permanent staff. In a good residential district eight homes have been built for the accommodation of executive heads and their families. The unmarried men find a congenial home in the club house. The club house is a two-storey, red brick structure, set in a large, well-kept lawn flanking the main avenue of approach to the general offices and plant. Across the avenue, and in a similar setting, is the boarding house for foremen. This house accommodates

Two Striking Scenes in the New Refinery



Copper Converters in Action

Enormous cranes are required to handle the ladles, their capacity being 50 tons



Pouring the Molten Copper

From a converter into the casting ladle after being separated from the nickel

26 and is operated on the janitor and housekeeper plan. The club house is a different proposition. An efficient Chinese staff cater to culinary wants and keep the place spotless. The comforts of a modern club are to be had here and it is the centre for all social recreation.

The guiding hand in the construction, equipment and manufacturing programmes of the new refinery is that of Mr. John More. The story of his work is inseparably linked with the development of the nickel industry, not only in Canada but in the United States. Born in Lanarkshire, Scotland, near Glasgow, in July 1870, John More went with his parents to the United States when ten years of age. From that time dates his connection with copper and nickel refining. At Elizabethport, N.J., he worked in a small copper plant until 1888, when he joined the Orford Copper Co., at Bayonne. When eighteen years ago, the Orford plant was taken over by the then newly-organized International Nickel Co., Mr. More's services were retained and his present post is a sufficient argument that he made good. Mr. More has practical experience in all branches of copper and nickel refining, but it is in experimental work that he has been most valuable. The separation methods now exclusively used by this company are largely the result of Mr. More's ideas.

The company expects to establish head offices in Toronto, and we understand the new sign will read, "The International Nickel company, of Canada, Limited.



General View of the Plant at Port Colborne

Modification of Car Service Rules

On Account of the Recent Epidemic of Influenza Demurrage Ought Not to be Charged

Published by Transportation Department

The following memorandum has been issued by Sir Henry Drayton, Chairman of the Board of Railway Commissioners, in connection with the effect of the recent influenza epidemic on the car demurrage rules:

A letter has been received by the Board from the James Shearer Company, Limited, of Montreal, as follows:

At our yards in Montreal we are practically tied up on account of the epidemic of Spanish influenza, and we find that the Eagle Lumber Company at St. Jerome, to whom we are shipping material to be dressed for us, are in the same predicament and in all probability cars will be under demurrage before we can even start to unload them.

"As this is a matter entirely beyond our control, we would ask if it is not possible to make special arrangements to have the demurrage charges withheld until the epidemic subsides.

"We trust you will be able to do something to relieve us, otherwise we shall be heavily penalized by the railways due to the unavoidable illness of our employees."

The Car Demurrage Rules do not cover a case of this character. While the rules arrived at were largely the result of negotiation and agreement between shippers and companies, a condition such as the present was never contemplated. There is no doubt as to the effect of the present epidemic. The railways themselves are unable to handle freight concurrently. A large number of cars set out for movement cannot be moved simply because so many of the railroad men are suffering from the influenza that it is impossible for the railways to move them. This fact is well known and has been recognized by the shipping public.

"Precisely the same conditions apply to the employees of industrial and other plants. As I see it, it would be absolutely unfair and improper to penalize shippers who cannot accept cars owing to the ravages worked by the epidemic on their employees. The matter is one absolutely beyond their control. Demurrage ought not to be charged under such conditions; and in my opinion the railways ought to be advised that demurrage ought not to be charged, and that if necessary the appropriate amending Order will be made as of this date."

Progress of the Reconstruction Movement

Permanent Organization of the Canadian Reconstruction Association Being Rounded Out—Possibilities of Greatly Improved Trade Relations with France—Survey to be Made to Determine Extent and Character of Canada's Industrial Organization

By SIR JOHN WILLISON

President, Canadian Reconstruction Association

WITH peace appreciably nearer, it is imperative that adequate preparation for reconstruction should be made by financial, industrial and commercial interests. In Great Britain, France, Japan and the United States remarkable measures are being taken to readapt war machinery to peace activities. Reconstruction movements are distinguished by the closer association of financial, industrial and commercial interests. The tendency is to co-operation and standardization in production, to combination for export trade and to financial measures calculated to secure increased capital and longer credits for industrial and commercial undertakings. Like measures are essential in the Dominion.

The Canadian Reconstruction Association at its third general meeting in Montreal on October 24, completed its initial organization. It now has a Western district committee with headquarters at Winnipeg and an Eastern committee with offices at Montreal, as well as the central organization in Toronto. Mr. Charles F. Roland, Secretary of the Soldier's Settlement Board, and before that Industrial Commissioner for Winnipeg, has been appointed permanent Secretary of the Western Committee, of which Mr. Augustus Nanton is Chairman. Mr. Roland has left for Winnipeg and will take up his duties immediately. There will be a marked increase in the Association's activities in the East. Mr. Chares H. Godfrey has been appointed Vice-Presdent of the Montreal Committee, and Mr. C. W. McDiarmid, permanent secretary.

Trade Relations with France

In view of the intense commercial rivalry which will follow the cessation of hostilities, it is encouraging to note the possibilities of greatly improved trade relations with France. At the Montreal meeting, Senator Beaubien, who is a member of the Canadian section of the Comite France-Amerique declared that the parent body had called the attention of its Canadian section to the great trade opportunity offered in reconstruction work necessary to restore the devastated areas of France, and had urged Canada to seize its opportunity. Senator Beaubien who argued for immediate action submitted some striking figures of our present exportation to prove that large orders can be secured from the Republic. He cited one case of an inquiry received by a Consulting Engineer in Montreal for no less than 250,000 miles of cable exceeding $10,000,000 in price. During September inquiries were received at the French Chamber of Commerce for shoes, hardware, lumber, foodstuff, canned goods, prepared furs, glassware for electric light, lard, bacon and smoked hams, toys, maple syrup, and tree-felling and cutting machines. Tremendous quantities of material are required by the French State Railways. The present demand for window sashes and doors alone in the devastated areas in France would supply a splendid market for Canadian factories, but Senator Beaubien pointed out that prior to the war and even up to two years ago, the major part of ready-made wooden doors sold on the Canadian market were manufactured in the States; most of them came from the middle West, many even from the State of Washington. A substantial proportion was made out of Canadian lumber. In other words, American doors dominated the Canadian market despite the fact that these articles had to bear the extra cost of the long railway haul and the Canadian duty. The reason for such an extraordinary state of things Senator Beaubien declared, was the failure of Canadian manufacturers to standardize their products, as he said, "with their enormous markets the Americans can specialize in one product and by producing enormous quantities reduce cost price to a minimum." Standardization is one of the outstanding features of British and American trade preparations. The question should be given the earnest consideration of Canadian manufacturers.

Investigation Department Created

Much progress has been made by the Association in the last two months. Arrangements have been completed by the Women's Department with the Departments of Economics at McGill University, the University of Manitoba and the University of Toronto for the establishment of Economic Research Fellowships for Women. An Investigation Department has been created and is being conducted by Mr. S. Roy Weaver, who was for a year Chief of the Educational Division of the Canada Food Board and has had special economic training and wide newspaper experience. This Department is now undertaking a comprehensive survey to determine the extent and character of Canada's industrial organization. This survey will cover assets, investments, sources of materials produced, markets, assessment and taxation, number of employees, wage bill and general industrial conditions. Particular attention will be paid to the preparations for reconstruction. It is also hoped to determine the extent to which scientific and industrial research is encouraged and what measures are being taken to establish better relations between employers and employees. Under the heading "Industrial Relations" a pamphlet has been prepared and will shortly be published dealing with movements in Great Britain, the United States and Canada to substitute co-operation for conflict in industrial affairs and to establish a more human relationship between employers and workmen. This pamphlet deals with the Colorado plan, the remarkable acceptance in Great Britain of the Whitley proposals for the creation of industrial councils, the experiment being conducted by the Standard Oil Company in New Jersey and other movements and decisions of importance in industrial life. It is imperative in view of the changed industrial situation which will prevail in Canada after the war that all possible measures should be taken to prevent labor disturbances. Factories employing a quarter of a million workers will have to be readapted to peace activities, hundreds of thousands of soldiers will have to be re-established in industrial pursuits. Between 1,000,000 and 5,000,000 persons will be affected vitally by demobilization and cessation of war orders. Unless there is sympathetic understanding and sincere co-operation between employers and employees, industrial machinery

cannot be adjusted to the new conditions without severe loss to capital, extensive unemployment and individual distress, conditions which are the cause of the present labor troubles must be corrected as far as possible or graver disturbances will follow.

The Women's Department is preparing a special pamphlet dealing with The Partnership of Women in Canadian Industrial Life and Reconstruction. A third publication will shortly be issued on "Preparations for Reconstruction in Great Britain." The Association has undertaken a comprehensive moving picture programme in which it is proposed to illustrate the natural resources of the Dominion and the national value of industrial development. Among the industries which will be dealt with first are the woolen, pulp and paper, grain and milling, iron and steel, packing and agricultural implements. Care will be taken to make the pictures of general public interest, and emphasis will be laid upon the national value of the industries. Other subjects are under consideration.

Big Shipbuilding Feat

Shipbuilding Company at Victoria, B.C., Will Build Twenty Ships in Record Time

The Foundation Company at Victoria, B.C., proposes to build twenty full-powered wooden steamships, on eight ways, in fifteen months, according to a statement made to the Victoria *Colonist* by H. B. Pickering, manager of the company. The first two ships will be launched in January; there will be three or four launchings in February, and after that one every fifteen days. The ships are under order from the French Government.

The Foundation Company is going about its ship production schedule in a new way. Instead of keeping the first ship started just so much ahead of the second ship all through the successive stages of building, and so on, the company will have two vessels at the same stage in each yard simultaneously. This will make it possible to use the whole working force engaged in specialized work together. It will also make it possible to obtain full use of the big lifting cranes, as an effort will be made to construct as much of the ship as possible outside the hull, thus tending towards quantity production and speed.

Manufacturer Wins Trophy

Shield Donated by C.N.R. for Capture of Largest Speckled Trout Goes to W. W. Butler

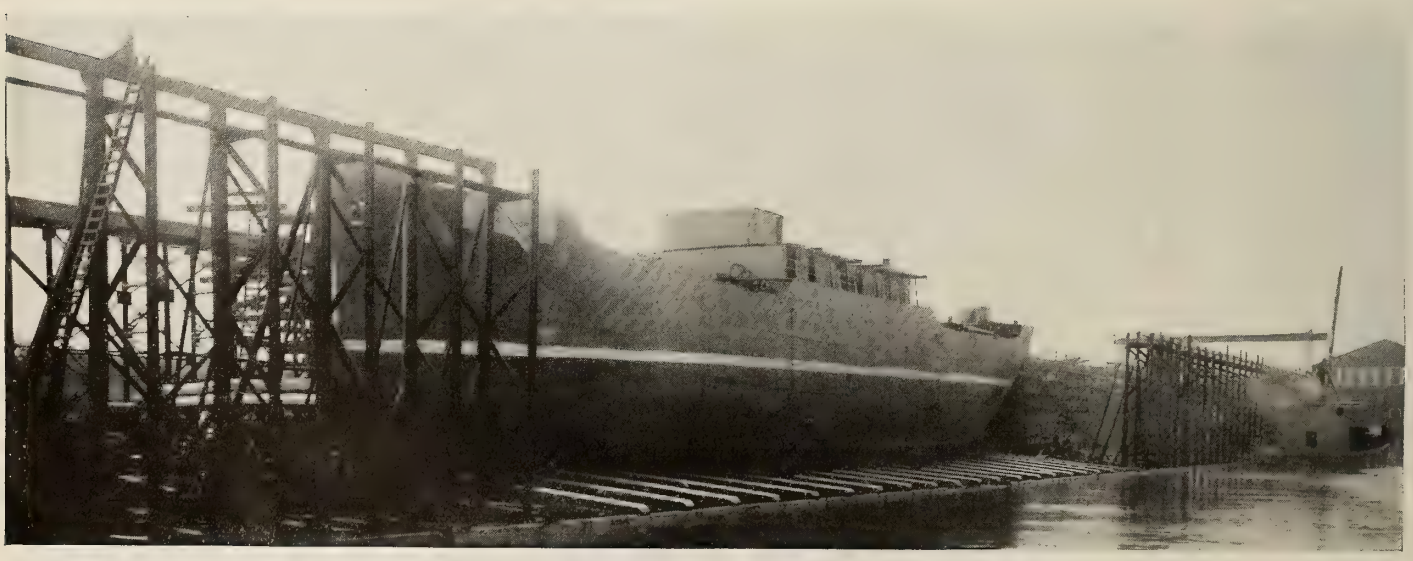
Wilson W. Butler, vice-president and managing director of the Canadian Car & Foundry Company, Limited, Montreal, has been declared the winner of the shield trophy donated by the Canadian Northern Railway annually to any non-resident angler catching the largest speckled trout with the regulation tackle prescribed for Nipigon waters, and Mr. Butler, who is quite an enthusiastic fisherman, is immensely pleased with the decision.

He caught his fish—odd coincidence—in the Cincinnati Pool, with a No. 18 Cincinnati hook, baited with a small, live cocatusche, operating from Cincinnati Camp. It was a beautiful specimen, and measured twenty-three inches in length and fifteen and one-half inches in girth. Mr. Butler has had the fish mounted by an expert, and it has become one of his valued possessions.

Mr. Butler also holds the 1912 record for the largest Albacore, caught in competition among members of the Tuna Club, Santa Catalina Island, California. He also is a member of the Izaac Walton Tarpon Club, Useppa Island, Florida.

Opening for Agencies

The offices of the association have been visited recently by Mr. Edward Wisdom, an experienced manufacturer's agent and commercial broker, who is desirous of getting into touch with Canadian manufacturers who wish to arrange representation in Great Britain. Mr. Wisdom is a University graduate, who has been engaged for the past twenty-five years in commercial life. He was established in South Africa for a number of years, has travelled extensively in Europe, and is just back from a trip to Japan and China. He speaks French, German, Dutch and Flemish, and has a good knowledge of commercial conditions in Europe. Mr. Wisdom, who will be at 59 Wellsboro Apartments, 414 Jarvis street, Toronto, during November, is not so much interested in technical lines as in raw materials, such as skins, wheat, flour, fruit, paper and general merchandise. He proposes to open offices in London and intends to cover all the allied countries of Europe.



Another Canadian Contribution to the Great Cause

This is the steamer "War Horus" built to the order of the Imperial Munitions Board by the Port Arthur Shipbuilding Co., Limited, and launched by them with appropriate ceremonies on October 5th

How Germany Tagged the Canadian Market

Few Canadian Manufacturers and Producers Realize the Extent to which the German Trade Investigators Investigated and Put on Record for Future Use by German Exporters the Many Lines of Manufactured Goods which Germany can Control in Canada

By EDWARD W. REYNOLDS

So much evidence has been placed before the Canadian public regarding Germany's designs on Canada as one of the benefits to accrue to the German people from a great military victory, that the Canadian public is prepared to believe anything. Yet there are facts that are being pushed right under the noses of many interests, even Government trade circles at Ottawa, which are being persistently ignored.

There is not much to be gained in a discussion with some authorities regarding German trade programme in Canada, because the person wishing to discuss them is usually shoved aside and characterized an alarmist. Added to this is the talk of the new kind of optimist who has come into existence following the allied victories on the Western Front. This type now affirms that Germany will be so soundly trounced that she will not even be able to follow out her plans if she wants to.

After over four years of warfare there is still a great misunderstanding of Germany. People do not comprehend her motives or make any attempt to understand what lies behind.

Germany's Post-bellum Policy

But, unlike Canada, Germany has a post-bellum trade policy. Her plans for post-war business are as carefully laid as were her war plans. The broad assertion may be made that as her military plans were frustrated so will her trade plans be shattered. That may be, but if it is going to take upwards of four years of economic warfare after four years of wholesale destruction, to finally defeat Germany's aims, what kind of conditions will prevail in the Canadian industrial world? No sane person can or will object to Germany's plans for extending legitimate trade, but every sane person will and does roundly condemn Canada, at least those responsible, for not having a definite trade programme; one that will help this country through the dangerous reconstruction period; one that will guard her against any sinister, illegal or any other kind of improper system that Germany may devise in order to get her goods into foreign markets.

There is a school of economists in Canada which argues that Canadians must win generously against the foe. "Conquering them largely," they call it. They argue that German goods must not be kept out of Canada, otherwise how can Canada live on that plan of brotherly love with the conquered enemy, which must be the case if peace is to prevail throughout the ages.

There is something in this argument, although the something is very small. Germany may have some things Canadians want and cannot get elsewhere, but the man who argues that goods must be bought from Germany in order to preserve the good-will of the Germans will have to do some hard talking before he convinces the average Canadian buyer and the merchant that this is the best kind of procedure.

Therefore, as Canadians are not likely to be seen walking in the highways and byways of the world's markets looking for German goods to buy, the Germans are going to do their own walking about in order to find customers for their products. But the said Germans know that if they carry their shingles with them, and flaunt their "Made-in Germany" signs in the faces of their prospective customers, their trade will be as good as lost.

The German merchants are not so foolish. Their diplomats may make mistakes, their military leaders may make miscalculations, but the trade kings have yet to show the same weakness. The vast industrial expansion that went on in Germany during the years that preceded the war demonstrated something that is not in evidence among the people who control Canada's trade destinies.

Will Sell Through Neutrals

The German merchants have already sensed their unpopularity. They know that their salesmen will be as welcome in the allied countries, after the war, as a polecat as a wedding feast. Therefore, they are going in for some industrial camouflage. They are going to sell German goods that are made in Switzerland, Holland, Sweden, and even Spain. Years ago it was illegal for a German merchant to export goods that did not carry the "Made-in-Germany" sign. Now the German merchant who would be so foolish as to print this mark on his packages would run very good chances of getting a term in jail. To a more sensitive people such a condition of affairs—a condition of self-imposed trade abnegation—would be unthinkable, but the Germans are not sensitive. The last four years have proved that.

Already a vast organization is in existence in Germany controlling the manufacture of goods, or making plans for the manufacture of goods which will be assembled and packed in the neutral countries. These exports will help to swell the export figures of these neutral countries, and make it look as though they were enjoying a wonderful balance of trade, but the money will go into German coffers.

That is how Germany will handle the manufacturing end of her commerce after the war.

Germans Know the Field

The question may be asked, how will Germany know what we want, and be able to help us get just what we want, when we want it. The answer is, that was settled long ago. The matter was handled by the German League of Foreign Traders' Association. It was, and perhaps still is, the German trade spy system par excellence. A few smart fellows might simply be going around buying a few samples here and there, just an innocent-looking shopping expedition, and yet get all the information Germany wanted. Indeed, this plan was carried out all over the world. It was done everywhere. It was done in Canada—of course before the war—but it was done, and the voluminous information and data gathered is no doubt fyled away in the trade archives of Berlin for future use.

Germany is a master trade expansionist. It is only during the past two years that Britain learned her game and played it. Canada knows nothing about it whatever. Canada has been "operated upon" just as Australia, South America, all countries have been.

No less an expert than Beaumont Alexander, the Vice-President of the Allied Industries Corporation tells of his

experiences. He says that for seven years he was connected with this league. He says that his duty was to find out what kind of merchandise was demanded.

"We would purchase samples from the stores," he confesses, "find out what they cost the jobbing trade or the merchant trade, as they call it, and then get as near as possible to the competing cost of that article (this was in Australia). We also found out if these articles were imported from Great Britain or France. We would compile the data and send it to Hamburg with samples, and our information would be taken up and distributed among the merchants and manufacturers. By the time we had covered our territory we would go back to our central point and there would find awaiting us from Germany facsimiles of the samples of merchandise the sale of which was already established, but at prices from two and one-half per cent. to ten per cent. cheaper than those sold by the British or French merchant. That gave the Germans an advantage over the French and Britishers. Being armed with that information it was easy for the German merchants to copy the articles in a cheaper form. That was the object of our investigation.

The other investigations carried out by the Germans was that covering the buying interests in these various fields. No matter where these buyers were located, whether in Australia, Canada, United States, Great Britain or France, they were communicated with, with a view to having them buy the "same" products at lower costs.

Germany would also investigate the banking facilities, and go one better. German agents were ordered to arrange good credits in these countries. In this way the Deutsche Bank could offer from 30 to 120 days credit, paying the manufacturer cash against an ocean bill of lading.

Germany facilitated its selling costs by generalizing her salesmen. Her syndicates also cheapened the overhead charges, and the saving thus effected was taken from the costs to the purchaser which made it easier for the German to sell his goods to his customer.

Such information will come as a surprise to many Canadian business men. The German merchant and manufacturer already has information at his disposal that places him at an advantage over the Canadian merchant and business man right here in the latter's own market. The German merchant and manufacturer is better-informed on even Canadian conditions than is the Canadian merchant, because very little, if anything at all is done for him.

What applies to Canadian trade applies to world trade. Canada has enjoyed a remarkable balance of trade, but that will vanish much quicker than it appeared, if the right measures are not adopted. Individual organization will do a lot of good. Organization of manufacturers and producers will do still more good, but the utmost good can only be done by the authorities themselves. Governments all over the world have long ago announced definite trade expansion policies. They are already in foreign markets. And incidentally it appears that the countries nearer the war zone, carrying the heaviest war burdens, have made the biggest strides towards commercial reconstruction after the war.

Many warnings have been issued. The Governments are not now so secretive about the possibilities of the war ending in a few months. Has Canada tagged any markets she would like to have business connections with later on?

Successful Home Products Fair at Victoria

By T. J. GOODLAKE
Secretary, Rotary Club of Victoria

STRIKING evidence of the industrial revival which is taking place on the Pacific Coast was afforded by the Victoria, B.C., Home Products Fair, held during the first week in October. The scene of the event was the large new department store built by the Hudson's Bay Company and loaned by them for the purpose before being fitted up for its destined uses. The paid admissions registered during the six days the fair was open came within measurable distance of the total population of the city and district and furnished proof of the spirit of co-operation and interest in local progress which has taken hold of the people of British Columbia's capital.

The products of industry displayed by the different exhibitors ranged in degree of note all the way from those of small local enterprises to the beautifully executed model of a shallow draft passenger steamer for British India river work, representing several which have been built by the Esquimalt plant of Yarrows, Ltd. Many manufactured lines were exhibited which have already attained to more than a provincial reputation such as soap, paint, jam and preserves, pickles, biscuits, beer, mineral waters, cereals, rice, mattresses, rubber roofing material, coffee, tea, spices and baking powder. Among basic industries of national importance lumber and coal were subjects of effective and interesting displays. A reminder that Victoria is the headquarters of the Pacific coast whaling industry was the Victoria Whaling Company's exhibit of methods of ensnaring their huge quarry. Agriculture and horticulture contributed some of the most prominent features of the fair. The Agricultural Department of the Provincial Government showed an outstanding exhibit of local products which was supplemented by that of the Dominion Government's Experimental Farm situated at Bazan Bay in the neighborhood of Victoria. The city's Greater Production Committee furnished proof of the extent to which vacant lot cultivation has taken hold of the citizens by a splendid showing of garden produce.

Several displays of cured fish also showed that a good start has been made in another line of unbounded possibilities. An attractive exhibit was one of high grade household furniture by an old established local firm. Last but not least was the stand which won the prize for the best exhibit in the fair, that of the vocational training branch of the Invalided Soldiers Commission, where the centre of attention was a rowboat in course of actual construction.

Circumstances prevented the representation of Victoria's largest producers, the Foundation Company, Limited, at whose yard and that of another concern now absorbed by them fourteen wooden steamers and auxiliary schooners have been launched and who have lately been awarded a contract by the French Government for twenty steamers, on which work has been started. The choice of Victoria as the location of this company goes far to justify the spirit of optimism which prevails in the city and which is further encouraged by the recent order for two large steel steamers placed by the Dominion Government with the Victoria Machinery Depot Company, Limited.

A military band and a well arranged programme of meetings, entertainments and addresses provided added attractions. Taken in all the fair was an emphatic success both as a demonstration of what is being done to-day and as an indication of the vast industrial development which the future will bring to this Last West.

Industrial Warfare

Separate Peace Pacts Between Individual Employers and Their Workmen Are Only Temporary Solutions of the Labor Problem

The Seventh of a Series of "Helps" for Progressive Executives

By ROBERT ARKELL

Of Thorne, Mulholland, Howson and McPherson, Industrial Advisors, Toronto

THE most ardent union man will admit that "striking" is an expensive privilege. He knows that if he is receiving 60 cents an hour and strikes for 10 cents an hour increase, he is staking his present wage of $26.40 per week against a chance of gaining an additional $4.40. Even if he is fortunate enough to win, and it has required only two weeks idleness, it will take him nearly three months to make up his loss while unemployed. This computation does not take into consideration the fact that he will spend an unusual sum for entertainment while out of work, as the amount involved will vary with the temperament of the individual; nor does it allow for strike pay received because the workman has already provided this himself by dues, special assessments, etc., collected by the union.

As for his employer: all one has to do is to charge up, say, six per cent. on his investment in plant, stock, etc., add taxes, insurance, salaries to executives, etc. (which run on whether the wheels are turning or not), and, without figuring on his loss of profit in the interval, the cost of a strike to him is sufficiently impressive.

Why Strikes are Resorted To

Why, then, one may ask, are strikes resorted to when both sides suffer from its effect? The answer can be given in two simple words: mutual distrust. The employer feels, and quite rightly so—at times, that a prompt agreement to labor's demands might be interpreted by his workmen as a sign of weakness, and result, perhaps, in further claims for recognition which might prove disastrous to his business. On the other hand, the workmen feel that their employers will never pay a "living wage" unless forced to do so, and in some cases this also, unfortunately, is true. Keeping in mind, then, the fact that labor knows strikes are expensive it frames its demands with this loss in plain view. If a voluntary increase of 5 cents an hour would have been satisfactory, labor insists upon 10 cents or perhaps 15 cents. There is always the chance, you know, that the men may lose, or have to compromise, and it is but natural, from their point of view, that they should try to make their employers provide for such contingencies. Who has not heard the "Saturday night" orator, on some street corner, telling the workingman that his employers are making fabulous profits solely from his and fellow-workers' efforts? Such statements may be based on ignorance or falsehoods but the workmen believe them and that is sufficient. The question is: How are we going to overcome this ill-feeling? Certainly not by standing aloof and allowing the employees to be drawn further and further away from their employers.

Lord Morris, speaking at a luncheon of the Entente Press Alliance, in London, on October 22nd, stated that it was largely by the false impression created in Germany and other countries that the ill-feeling against Great Britain has been aroused. To correct the mistake of the past, he continued, it was the intention of the Alliance, by a systematic, intelligent and persistent propaganda, to prove to other nations that Great Britain did not deserve the things that have been said owing to faulty diplomacy. Is not the employers' problem much the same.

On page 41 of the October issue of INDUSTRIAL CANADA, appears an editorial under the heading "Solving Labor Difficulties at Home," which will stand more than one reading by everyone interested in this vital question. It is not a cut and dried plan which can be immediately endorsed by Canadian employers of organized labor, but it is a suggestion upon which a satisfactory solution may be based.

Problem of Unorganized Labor

Unorganized labor, however, presents a different problem. Here we have a large body which is deeply rooted in every branch of industry. How are we to reach this class? It is certainly not economical to continue adjusting each individual's grievances separately. Unionism is on the gain and it may be that, in time, every employee will belong to some organization or other which promises to secure and defend their rights, but until then the employers may have to encourage the appointment of representatives by the employees of each plant for the drawing up of mutually satisfactory wage schedules, working conditions, etc.

As the initiative for such a step would have to be taken by the employers themselves, a few might hesitate to undertake the responsibility, but if views were exchanged among themselves and the foundation laid for the formation of their own labor bureau, there is no doubt that this feeling could be overcome, as all would be acting in concert. It is true that some manufacturers already subscribe to what may be termed, in a limited sense, an employers' association, which sometimes acts as a mediator, but such settlements are really patch work. What is urgently needed is at least a partial prevention of this constant friction instead of so many temporary cures. The average workingman is naturally industrious, peaceful and loyal. The general run of employers are sympathetic, generous and their word is as good as their bond. The task of reconciling these two parties would not, therefore, be as difficult as it would seem, especially if it were undertaken by an energetic, broad-minded business man, who has had a wide experience in many lines of industry, and a thorough knowledge of the practical application of all wage payment systems, etc. The workingman is not interested in the pretty phrases of the theorist. He wants to be spoken to in a language he understands, by one who knows his side of the question.

Attention to Employees

In the meantime all employers should give more of their time to the people whose names appear upon their payroll. If the number is small and an employment manager cannot be afforded, centralize the authority to hire and fire in the superintendent. This does not mean that the different foremen will be compelled to accept anyone who is sent to him by the acting employment manager, because that would under-

mine his authority and destroy his interest to a great extent, but if the new hand is refused by one foreman and cannot be used by another an explanation should be furnished; for if this should happen often it shows that either the employment manager is a very poor one or the foreman is not co-operating—in either case a change is necessary. Practically the same rule applies to the discharge of employees. If a foreman should not want a certain workman, and the man cannot be used in any other department, it will, of course, be necessary to let him go, but no one, once engaged, should be allowed to leave without an excellent reason being given.

Getting the New Man Started

When the new man starts he should be introduced to the men on either side of him to make him feel at home, as that "strange" feeling is the cause of 50% of your labor turnover. At noon of his first day, the foreman should find him a place in the lunch room and "open" the conversation for him with those around him. After lunch the foreman should enquire how the man likes his work—emphasize the good points of the plant, and tell him how pleased everyone will be to help him make good. It is these little things that count. If a lunch room is not provided and the men go out to lunch, give the new man the name of the cleanest and most economical restaurant in the neighborhood and send him along with other men who are going to the place mentioned. If the man does not seem to be doing very well ask his foreman why and do not let the latter indulge in generalities. Sometimes a foreman will take a dislike to a man and make it hard for him to advance, but if any foreman makes a practice of such things the firm would be better off without him, when a vacancy occurs, promote from the ranks. At times, of course, this rule is impossible to observe, but in such cases the reason should be fully explained to the man who expects the promotion. Always impress the men with the company's sense of fairness and unless the man is unreasonable he will strengthen his weak points and be ready for the next opening. The main issue which must be kept in mind by employers is that there should be no "blind alley" jobs in the plant. Every man should be made to feel that he can work his way to the top. No man likes to feel that he will always be just a bench hand. Give them something to look forward to, and reward ability as well as seniority. In short: exhibit a *genuine* interest in your employees' welfare and you stand a very small chance of losing them.

The Worst Profit-Thief of All

The modern manufacturer employs expert mechanics for the constant inspection of his machinery and equipment, in order to prevent breakdowns which would make serious cuts in his production and great increases in his costs; but the thought of adopting similar measures to control his labor turnover—the worst profit-thief of all—does not seem to have done more than arouse his interest.

FOREIGN TRADE OF CANADA

(Comparison 1916, 1917 and 1918.)

IMPORTATIONS.

	Month of September.			Six Months Ending September.		
	1916.	1917.	1918.	1916.	1917.	1918.
Dutiable Goods	$37,952,740	$43,651,770	$41,396,422	$216,584,807	$299,089,018	$271,008,905
Free Goods	30,813,522	32,241,595	30,073,058	174,380,436	250,836,206	213,523,309
Grand Total	$68,766,262	$75,893,365	$71,469,480	$390,965,243	$549,925,224	$484,532,214
Duty collected	$11,942,791	$12,581,720	$11,949,057	$70,102,854	$88,280,620	$81,562,654

EXPORTATIONS.

Month of September.

	1916		1917		1918	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$6,981,919	$13,509	$6,963,522	$84,760	$5,936,411	$350,344
The Fisheries	2,366,727	3,029	3,156,011	11,885	2,478,003	69,285
The Forest	5,475,740	9,315	5,223,549	5,726	5,953,568	1,801
Animals and their Produce	12,183,712	235,763	20,102,625	590,508	16,488,176	156,521
Agricultural Products	25,164,034	610,775	20,657,937	26,799	16,165,760	38,236
Manufactures	37,801,177	923,525	56,243,863	1,959,283	91,530,916	969,539
Miscelleaneous	311,872	190,302	273,955	176,624	185,866	260,386
Total Merchandise	$90,285,181	$1,986,218	$112,621,462	$2,855,585	$138,738,700	$1,846,112

EXPORTATIONS.

Six Months Ending September.

	1916		1917		1918	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$40,943,415	$123,798	$35,924,760	$196,864	$39,065,437	$1,425,902
The Fisheries	10,329,868	12,317	10,433,771	82,746	11,502,466	251,392
The Forest	31,253,551	202,274	28,335,896	37,483	40,725,664	37,018
Animals and their Produce	53,382,886	1,722,444	83,002,705	2,195,101	73,747,986	2,192,661
Agricultural Products	206,141,326	3,217,525	260,654,950	6,612,056	133,683,806	623,499
Manufactures	190,823,240	4,224,227	345,960,399	10,329,291	288,954,968	6,422,159
Miscellaneous	3,847,228	778,564	2,551,231	1,182,423	2,905,187	1,162,521
Total Merchandise	$536,721,514	$10,281,149	$766,863,722	$20,635,964	$590,585,514	$12,115,152

The Bell Telephone Company's Application

Full Text of the Official Application to the Board of Railway Commissioners for Canada for Authority to Increase Telephone Tolls—Manufacturers Urged to Study the Application and Make Note of Any Objections, Sending Same to the Transportation Department

Published by Transportation Department

IT has been thought advisable by the Transportation Committee that the full text of the Bell Telephone Company's application for the increased rates should be placed before the members of the Canadian Manufacturers Association so that an opportunity might be afforded for members to study the document. The Transportation Department would be glad to receive advice from members as to all objections which they may have to any provisions of the application.

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

The Bell Telephone Company of Canada hereby applies to the Board for an Order under Section 4 of the Act 7-8 Edw. VII, Chap. 61 (1908) entitled "An Act to amend the Railway Act," authorizing the following increase and changes in and additions to the telephone tolls which it is presently authorized to charge:

1. An increase of twenty per cent. (20 %) on all tolls, rates, and charges for exchange telephone service and charges incidental thereto, including charges for extra facilities or additional equipment, except the following rates and charges mentioned in the General Exchange Tariff C.R.C. No. 3100, Section 8—Construction and Installation Charges; Section 16—Moving Charges; Section 18, Sheet 2—Hotel Message Rates—local messages only; Section 19—Public Telephone Service.

2. All tariffs of tolls for Long Distance Service filed with the Board to be replaced by the following:

Basis of Measurements—Actual air line mileage.
Minimum Initial Rate—Ten cents for distance of 0 to 8 miles and five cents for each additional 8 miles or fraction thereof.
Initial Period—Three minutes.
Overtime Period—One minute.
Allowance for Timing—Fifteen seconds.
Basis of Overtime Charges—Each overtime minute charged for at one-third initial rate to next lower multiple of five cents.
Night Rates—Effective from 8.30 p.m. to 11.30 p.m., 60 per cent. of the initial day rate and from 11.30 p.m. to 6 a.m. 40 per cent. of the initial day rate to the nearest multiple of five cents.

The basis of overtime charges will be for each overtime minute one-third of the initial night rate to the next lower multiple of five cents.

Example

TOLL RATE SCHEDULE AND TABLE OF COMPUTED TOLLS.

Distance Steps Air Line Miles.	Miles.	Initial Rate, 3 min.	Overtime Rate One minute.
0 to 8 miles inclusive.....	..	.10	.03
Over 8 miles up to and incl.	16	.15	.05
" 16 " " "	24	.20	.05
" 24 " " "	32	.25	.05
" 32 " " "	40	.30	.10
" 40 " " "	48	.35	.10
" 48 " " "	56	.40	.10
" 56 " " "	64	.45	.15
" 64 " " "	72	.50	.15
" 72 " " "	80	.55	.15
" 80 " " "	88	.60	.20
" 88 " " "	96	.65	.20
" 96 " " "	104	.70	.20
"104 " " "	112	.75	.25

Note.—To compute charges for service exceeding one hundred and twelve miles apply the above rates for initial period and overtime.

TARIFF REGULATIONS.

Appointment Service—Furnished without charge.
Regulations Governing Messenger Service—Messenger service furnished at cost.
Reversal of Toll Charges—Toll charges may be reversed on guarantee of payment by person called.

3. A charge to be known as "Service Connection Charge." Service connection charges shall be collected from all applicants for new or additional service at the time of application and before such new or additional service is established.

Service connection charges shall apply to all classes of service and each class separately for which the company has a regular, separate established rate and the amount of the service connection charges shall be determined by the amount of the regular established rate in accordance with the terms of the General Exchange Tariff C.R.C. No. 3100.

Except as may be otherwise provided, the following service connection charges shall apply:

Where the rate is Per Annum.	Per Month.	Service Connection Charge will be.
$15.00 or less	$1.25 or less	$2.00
30.00 or less	2.50 or less	4.00
48.00 or less	4.00 or less	5.00
Over $48.00	Over $4.00	6.00

4. A charge of $2.00 for change of name.

5. Charges for moving telephone stations and other equipment as set forth in existing tariffs of tolls be revised to read as follows:

"Station moves to other location in same room—$2.00."

"Station moves to different location in same building and premises—$3.00."

"Miscellaneous equipment moved at same time as station with which it is associated—no charge."

"Moved independently of station with which it is associated to another location in same room—$2.00."

"To different room in same building or premises—$3.00."

"Private branch Exchange switchboard moves to different location in same premises—at actual cost."

"Inter-communicating system or any portion thereof moves to different locations in same premises—at actual cost."

"Station and equipment moves to other premises—service connection charges shall apply."

6. Tariffs of tolls setting forth the foregoing increases and changes in and additions to existing tolls are herewith filed with the Board for approval.

7. All increases and changes in and additions to telephone tolls to be effective from and after the twentieth (20th) day of November, 1918.

8. The foregoing increases and changes in and additions to existing telephone tolls are necessary in order to permit of the applicant meeting the greatly increased cost of furnishing telephone service to the public due principally to increased cost of labor and materials and other elements of cost affecting public utilities companies.

Dated at Montreal, this fifteenth day of October, 1918.

Solicitors for
THE BELL TELEPHONE COMPANY OF CANADA.
Applicant.

To the Cities of Montreal, Quebec, Toronto, Hamilton, Ottawa, London, Brantford, Windsor, Kitchener, and St. Catharines.

Take notice of the foregoing application which will be presented to the Board of Railway Commissioners for Canada at such time and place as may be fixed by the Board, of which appointment you will receive due notice.

Montreal, October 15th, 1918.

Solicitors for Applicant.

Uniform Regulations for Steam Boilers

Progress that has been Made towards Effecting this Object in Canada —Work of the Recent Winnipeg Conference — Views of Manufacturers are Sought on the Draft Regulations Drawn Up Thereat

AN inter-provincial conference for the purpose of drafting uniform regulations for construction and inspection of steam boilers, was held at Winnipeg, commencing August 26th, which was attended by the following delegates:

Mr. John Peck, Chief Inspector of Steam Boilers and Machinery for British Columbia, Chairman.
Mr. R. M. Blackburn, Chief Inspector of Steam Boilers for Saskatchewan, Secretary.
Mr. F. W. Hobson, Chief Inspector of Steam Boilers for Alberta.
Mr. R. A. Stewart, Acting Chief Inspector of Steam Boilers for Manitoba.
The Honorable O. H. Armstrong, Commissioner of Works and Mines for Nova Scotia.
Dr. Riddell, Commissioner of Labor for Ontario.
Mr. D. M. Medcalf, Chief Inspector of Steam Boilers for Ontario.
Mr. E. F. Valiquet, Superintendent of Montreal Water Works, Quebec.

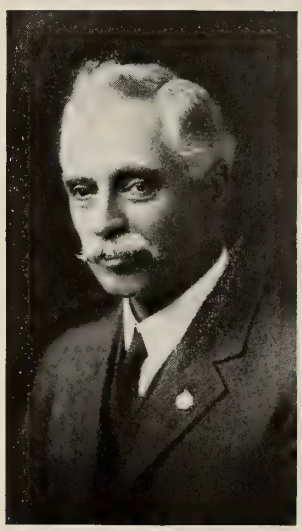
The first step towards uniformity of regulations for construction and inspection of steam boilers was taken at a conference held in Regina in December, 1909. At this conference a code of regulations was drafted which was adopted by the Provinces of Saskatchewan and Alberta, and later on by the Province of Ontario. While the regulations adopted at this conference were fairly comprehensive, there were a number of points which were left unsettled and on which there was a difference in the requirements of the different provinces. This difference entailed considerable hardship on manufacturers who were thus unable to build a uniform boiler which would be acceptable to the Inspection Departments of every Province; and in order to secure greater uniformity a second conference was held at Toronto in 1914, at which the regulations drawn up at Regina were amended.

Delay in Enforcement of Regulations

On account of the outbreak of the war, the amendments to the regulations approved at the Toronto Conference were not actually put into force, and the matter of uniform regulations remained in abeyance until the Province of Manitoba decided to reconstruct their Boiler Inspection Department and adopt regulations for construction of steam boilers similar to those in use by the other provinces. Their Chief Inspector, Mr. Stewart, found that while the requirements of the different provinces were very similar in many respects, there were considerable differences in their requirements, and with a view to the adoption of a more uniform code, the Government of Manitoba invited the other provinces in the Dominion to send representatives to a convention at Winnipeg to go into the matter more fully and draft out a new code which would be acceptable to all the provinces.

Owing to the large amount of material to be considered, the work was somewhat protracted and the conference did not complete its labors until September 7th. There are still, we understand, a number of minor points which remain to be settled by correspondence, so that it will probably be several weeks before the regulations drafted at the Winnipeg conference will be published, but we are informed that before the regulations are finally adopted an opportunity will be given to manufacturers and others interested to express their views on the matters dealt with at the conference.

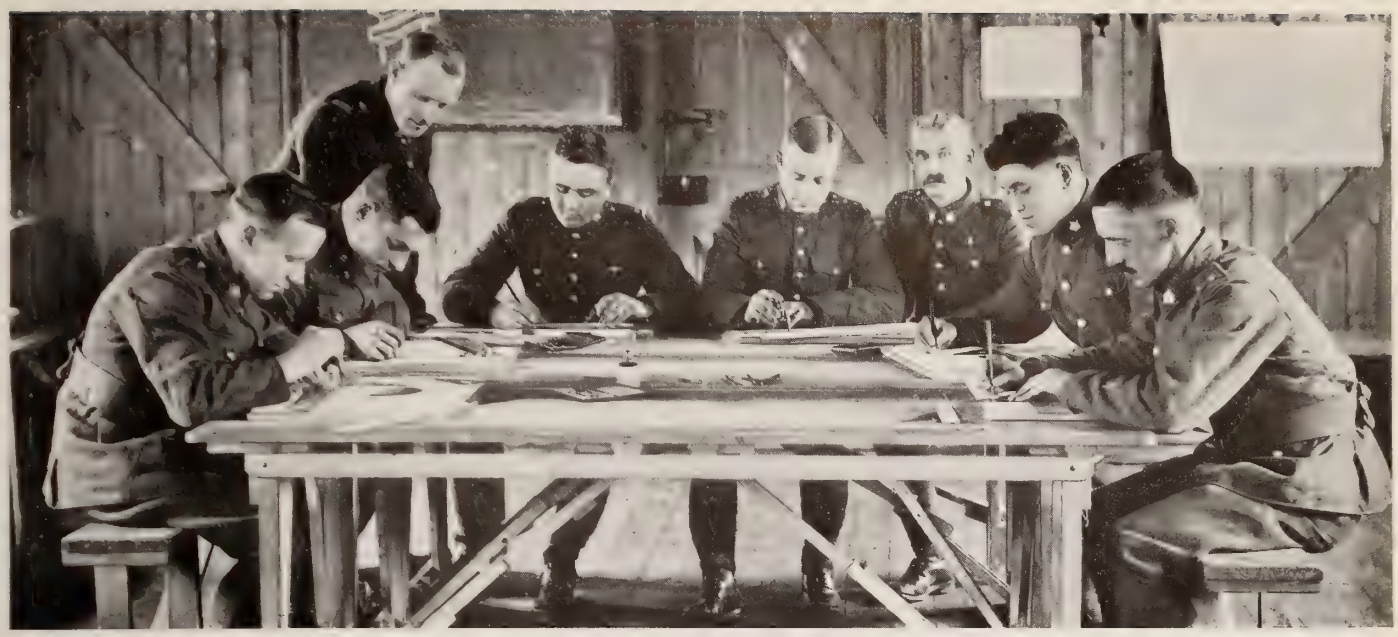
A meeting between the delegates and representatives of the Canadian Manufacturers Association was held in the Legislative Chamber, at Winnipeg, during the conference, at which a number of points of interest to manufacturers were discussed, but as the work of the conference was not completed and the Manufacturers Association had had no opportunity for studying the proposed new regulations, it was felt that a further opportunity should be given them of expressing their views after the regulations had been drafted and the manufacturers had an opportunity of studying them.



John Peck
Chief Inspector of Steam Boilers and Machinery for British Columbia. Chairman of the Conference.

Considerable attention was given at the conference to the construction and installation of heating boilers, and we understand that the new regulations will deal fully with this matter.

Consideration was also given to the inter-change between the provinces of engineers' certificates, but owing both to the pressure of work and the absence of the Examining Boards of some of the Provinces, full consideration of this question was postponed until the next meeting of the conference.



Class in Drafting at Seaford College, England

One department of the work of the Khaki University of Canada in the military camps

Reconstruction in Canada After the War*

A Scheme of Social and Economic Reconstruction to be Worked Out by a Central Commission Composed of Men Judged to have the Synoptic Mind and the Practical Political Ability to Enable Them to Draft a Consistent Scheme of Enquiry

By DRIVER HERBERT J. COOPER

C Company, Canadian Engineers, Seaford Camp

THE smallest amount of meditation and thought on the vast possibilities in the future for the amelioration and betterment of the body social in Canada after the war, succeed only in presenting to the mind a huge canvas, executed in the spirit of that school of painters, termed Futurist—a canvas, crossed and recrossed, intersected, and, as it were, pierced by the rays and beams of color, irridescent with the fires and the life of the opal, having all the hues and graduations of light and shade necessary for beauty and harmony, and yet the whole medley incapable of translation into a connected logical theme. One cannot follow any one ray of expression, any one promising scheme, without realizing that the whole canvas must be viewed with patience, and understanding, and sympathy, before the meaning and import of the parts become clear to the inner vision.

Canada, in the period before the war, had its legion of reactionaries and reformers, studied and unstudied, in every walk of life—men sometimes without education but with that close acquaintance with the hard and unfeeling results of laws, themselves the outcome and result of careful thought, which forced them, seeing something amiss with their immediate social surroundings, to give incoherent, but vehement utterance to schemes of constitutional reconstruction, each containing the germ of a possible, and necessary, change for the better—schemes as large in number, as various and variegated in their basic ideas, as to result only in making confusion worse confounded. In their enunciation these schemes seem simple, but the least attempt to put them into practice unfolds their manifold complications and dovetailing with all the other laws, which hitherto have been deemed just and equable.

Disconnected Work in the Past

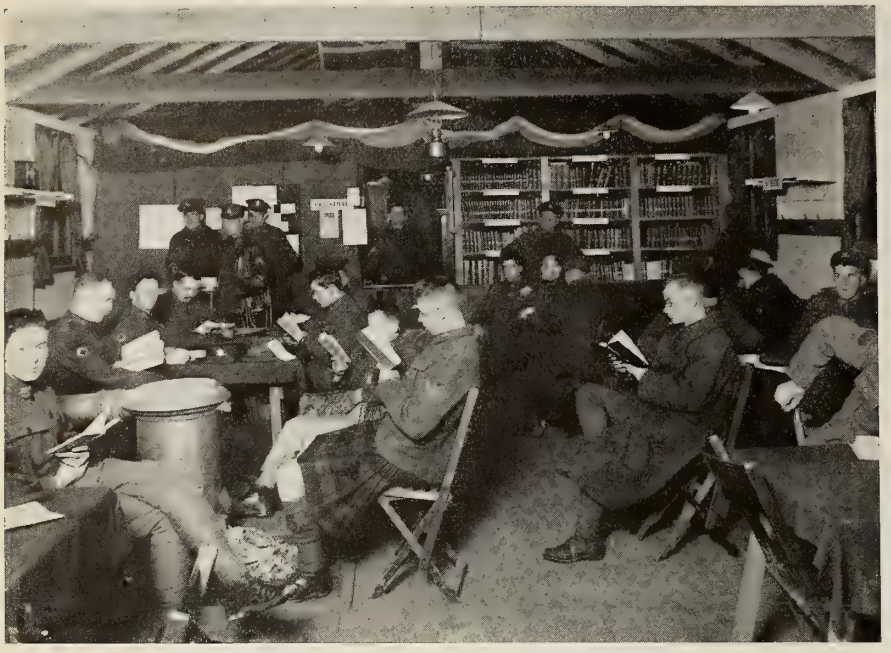
They do not rest on a single basis, either political or economic, but comprise such divisions as capitalism, militarism, imperialism, absolutism, bureaucracy and legalism, all connected and interlocked in such a way as to form a vicious circle of reaction, a maze through which one can hardly thread a way. The result of the disconnected work done by, and tried by, these reactionaries has been only to put into the hands of a few the economic, political and social power of the nation, to be used by them sometimes unconsciously, sometimes with malice aforethought, for their own profit and their own benefit.

But with our conscious studied effort, or without, something new must be evolved from the crucible of war. A change is almost in the natural order of events which have, by literally overwhelming the *status quo ante bellum*, made our social happiness dependent on a wise choice of all the expedients and schemes so crudely but so poignantly presented to our minds.

We need then, in Canada, in the first place a co-ordinated effort to examine the interconnection of the parts of this

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* This essay was awarded the first prize in a competition recently conducted among the Overseas Military Forces of Canada by the Khaki University of Canada. The subject set for the competition was "Suggestions as to Social and Economic Reconstruction in Canada After the War." A committee of Oxford professors acted as judges, and, in awarding the first prize to Driver Cooper, said that his effort was "a very sensible, well-written and carefully-thought-out answer." Cash prizes to the amount of one hundred pounds were offered by Major C. W. Maclean, of the 12th Canadian Reserve Battalion, for distribution to the writers of the best fifteen essays, and Driver Cooper received twelve pounds for the winning composition. INDUSTRIAL CANADA is enabled to publish the essay through the courtesy of the National Council of the Y.M.C.A., which originated the idea of the Khaki University, and has promoted its establishment and assisted in its work.



Library of the Khaki University at Witley

vicious circle of reaction, so as to dovetail them into those forms of democracy which already exist in very large measure in Canadian laws. We have had too much struggle and bitterness, let us now take thought and construct a social order based on the union of force and law, and controlled as far as possible by the people. But any reconstructive scheme, and all such schemes, should be fitted into, and made to regenerate that residue of the common laws of Canada which shall be deemed, after due consideration, to be the *sine qua non* of our social edifice. There should be most careful forethought so as to prevent the wholesale uprooting of all those parts of our system of laws and government which have been alleged to the causes of suffering. The opinions and the schemes to be considered run through numerous channels, but do not always bear a reasoned or a consistent view of social or political economy, so that though they be teeming with possibilities, they must be studied with diligence before any one of them can be translated into practical politics.

We must begin then with a Commission composed of men judged to have the synoptic mind and the practical political ability to enable them to draft a consistent scheme of enquiry into those various expedients and suggestions calculated to be necessary for a thorough reconstruction of the social and political economy of the country.

After War Basis Uncertain

We do not know yet how the war shall end. Shall it end with a League of Nations, a League of the Powers allied with us at present, some smaller Entente cordiale with France, the United States of America and Belgium? Or shall it end merely with a British Empire? How shall this Empire be constituted? This is an important question, for on the answer to it depends the form of Canadian trade and the taxes thereon; and further, the inevitable financial reconstruction of methods for obtaining the increased revenue necessary to pay our war debts, depends in great measure on the relationships we assume with the Mother Country, with the other Dominions and the nations of the world. This question being yet in part unanswerable, we must leave uncompleted an attempt to outline any possible suggestions for obtaining revenue from either imports or exports; but we can assume that the Empire will stand together so that it is possible to consider the question of the taxation of trade between the various members of the Empire.

Should the various schemes for Inland Revenue to be touched upon later on in this paper be considered possible or rather practical, then it is believed that at least within the Empire all trade could be free, the revenue obtained from other methods of taxation being sufficient to defray not only the cost of government, but also to repay our war indebtedness.

Should the methods of taxation suggested at a later period in this paper be considered incapable of producing the necessary revenue by the Commission to consider all reconstructive schemes, then it may be found that some measure of preferential tariffs within the Empire, or including the Allied Nations, could be instituted to provide the necessary balance of the revenue required.

But lest it should be judged that no commission of mere human beings could envisage and digest such a large assembly of variegated schemes as will be put before it for its consideration and arrangement, it should be added, that this Commission is not required to evolve the whole reconstructive programme in detail. This first Commission, or as it would be called, the Main Reconstructive Committee, would be expected to divide and rearrange all the various schemes and suggestions into groups of subjects which should each play a distinct and essential but not redundant part in the larger main scheme of reorganization. These groups of subjects would then under this method of procedure be handed over to other sub-committees for their consideration, and after a thorough sifting by these latter bodies, the group entrusted to each one of them would be handed back to the Main Reconstructive Committee. The matter thus handed back should be not merely an analysis of the group, but a wholly practical statement of a scheme evolved from the group of suggestions handed to the sub-committee originally.

The Work of Sub-Committees

Thus, for instance, the sub-committee on the taxation of trade would be advised of the general scheme of reconstruction, and then, being given all the known data having to do with our foreign relationships, would be expected to make a digest of all the possible schemes of taxation, whether it be preferential taxation, protective taxation, or taxation for revenue, or these three in combination. Having made such a digest, the sub-committee, taking into consideration the general scheme of reconstruction, would be expected to make a definite and precise statement of the exact method for the taxation of trade. In this manner, gradually and with care the whole vast scheme of reconstruction would be pieced and dovetailed together by the Main Committee, this procedure being suggested to save time, and also to have all the parts of the new policies essential to and in agreement with the whole. Some such procedure is indeed necessary for iconoclasm in the period after the war will surely eclipse all previous records in the economic sphere.

Already we recognize that in foreign policy the *status quo* has been most effectually dispelled, and it is also true that in home affairs the *status quo* has vanished beyond all possibility of return. The labor market has been shaken to its foundations. The labor organizations have seen with understanding, sometimes with dread, at times with joy, the vast changes

in similar organizations in older countries overseas. Seeing these movements and upheavals in England and France and Russia, the labor party in Canada is most certainly determined to bring about similar changes at home for the amelioration of its proletariat. But Labor is not alone in agitated movement, for Capital is also faced by new and momentous questions. Hitherto we have heard weak voices urging the State control of railways, mines and shipping, but now we see these things accomplished, and, moreover, working shorthanded under the stress and strain of war with all due efficiency, considering the difficulties imposed by an unexpected state of war. We have seen what is known as profiteering during the piping times of peace, but war has so accentuated the feeling against such methods of trade, that it has struck deep root throughout the community. Above all, the fabulous financial charges imposed by the war have revolutionized all standards, and converted many pre-war theories into so much paper fit only for the scrap heap.

In Canada we have not yet had any distinct and insistent demand for the conscription of wealth, but should the war continue very much longer, this idea, too, would become concrete fact. We have already the conscription of flesh and blood, and that is only a step removed from the conscription of wealth.

But beyond all this we cannot but see that what is known as the working classes are at last coming to realize their vital interest in our foreign policy, the mismanagement of which is paid for dearly with their blood. They will demand, and they deserve a reformed diplomacy, a diplomacy open to their understanding and to their ken, and a diplomacy under their own control. Considering these matters, the working classes must inevitably come to the conclusion that there must be an extension of educational facilities, which alone will enable them to hold the key to that control.

Central Committee Necessary

It is idle and worse than useless to pretend that this vast impending transformation of Canadian society is regarded with anything like unanimous feelings, or that the transformation could be easily sifted clear cut and whole from the multitude of methods now being propounded. Hence it must be clear that some such scheme as a Central Committee, with definite sub-committees, must first be created before the questions relating to any reconstructive policy could be touched upon with justice and with any hope of a clear-sighted and logical resultant. It would be idle and criminal to entrust any such policy at this most favorable time to the Houses of Parliament, the dwellers therein being only likely to essay empirical inoculations against what they would surely in comfort term revolutionary bacilli. No, it is believed that the only logical and safe procedure is the one outlined above, the outline being only in the nature of a first suggestion, and by no means propounded as a finished and altogether workable idea as it stands; but it is enunciated here as the first necessary step in an attempt to give without elaboration a rough draft or a synopsis of what is needed in Canada.

We leave the discussion of the taxation of external trade, with the added suggestion that at least as long as the war debt were unpaid it would be expedient and justifiable to tax heavily all luxuries—the term luxuries to be defined by the Main Committee.

It is an easy step from the thought of the taxation of external trade, to that of the idea of obtaining revenue from certain internal, and probably pernicious trades such as the liquor trade. In large measure Canada has, in the everyday language of the country, "gone dry," but the laws governing this degree of aridity are such that liquor may yet be manufactured. It is suggested that the taxes on this trade should be increased very substantially, for it partakes of the nature of a luxury trade.

It has been mentioned before that in all probability there will be in Canada a request from labor that all incomes above a certain sum should be taxed very heavily—the tax partaking very possibly of the nature of a confiscatory levy.

The Problem of Taxation

It is not the object of a paper such as this to discuss the consequences of such a confiscatory tax to any degree of nicety, but the idea is here brought forward because it is practical though it be inimical to certain interests of Capital, and conceivably to certain interests of the State and of Labor itself. But this proposition should be one of those to be carefully considered by the sub-committee on taxation, and it may be here mentioned, that in all probability this sub-committee would necessarily be divided into smaller parties of experts to consider the various suggestions for taxation, these suggestions being very complicated in detail, and very far-reaching in their relation to the economy of the country.

For instance, it would be difficult for one committee to study adequately a tax on unearned increment, and taxes on unused agricultural land, and on urban properties held in idleness while their value soars upwards because of the buildings erected in juxtaposition. There is no doubt that there should be a supertax on such speculatively held building sites, but the actual method of the imposition of the tax needs careful consideration. Besides such a tax there might also be an increased levy on the value of land on every occasion it changes hands. Such a levy is already made in Canada, so that a considerable increase in the amount of the tax would be a comparatively easy matter to settle; though the increase should not be so great as to deter the easy buying and selling of land, for such a result would naturally hold back for a period the building industry.



Wireless Class at Witley College

The same sub-committee would be expected to enquire into the advisability of taxing trades, which being dependent on secret formulæ, take upon themselves the nature of monopolies.

Leaving the subject of taxation, it is advisable now to touch upon possible changes for the better in the method of administering the resources of the country. In the first place, it should be remembered that such resources as oil, coal, iron and water powers, might be considered with justice, to be public necessities. Should such necessities any longer be sold to individuals or to corporations, or should they be held and worked only by the State? It is urged here, that though much may be said on the side of private ownership of public necessities, yet it is certain that Canada, having such an enormous debt to pay, it would do more good than harm if such resources were, at least for a period, held and worked by the State. This being urged more confidently because at such times when the burden of debt falls so heavily on every member of the community, it is wholly right that profits obtained from public necessities should either be totally eliminated, or used entirely for the removal of the burden of debt. But at present a large proportion of the coal-bearing areas of the country are already privately owned, and in most cases inadequately worked, so that it is necessary to take steps to have such areas worked to their full capacity. In order to bring this about, it is possible to conceive a tax levied in proportion to the yield of the mine, the capital invested, and the extent of the holding; for it is easy to imagine a large coal-bearing area, bought when it was cheap, being far from settlements and inadequately served by railroads. Such an area, on becoming central to a settlement or on being served by a railway, could be worked by the owners in several different ways. The capital invested being small, a very small amount of development would bring in, because of the new settlements, a relatively large profit—this profit being so large as to repay the owners so handsomely that there would be no incentive to increase the working of the mine in order to serve a greater district. The point being that the ownership is not interested in the service of the country so much as in obtaining a large profit with the minimum of capital and the minimum of trouble. The tax proposed above should be such as to provide the incentive, or to force such owners to either invest more capital and serve a greater district, or to sell their property back to the State. The method of imposing such a tax is certainly a complex subject, but by no means is it impossible to devise a tax proportional to the area and the capital invested, and inversely proportional to the yield in relation to the area served by the mine.

State Ownership of Water Powers

In the case of water powers it would be advisable perhaps to arrange for the State alone to reap the benefit of all profits from their development. For when the State developed a scheme of water power, the cost of the produce could be kept at a minimum, while the area served could be made a maximum. For instance, the City of Winnipeg, on developing the falls on the Winnipeg river—the corporation known as the Electric Street Railway Company of that City had immediately to reduce its rates almost sixty-six per cent., and also to extend its power lines to the suburban districts of the City of Winnipeg—simply because the city-owned power made a minimum of profit and served a maximum of area. From the above illustration it is very evident that much can be done towards the amelioration of the lot of all citizens by the public ownership of such power development; but it is suggested here that since such a reduction can be made in the price of power it would be feasible and correct to make a smaller reduction in price with the idea of using the surplus profits for the common good, by handing it over in repayment of the public debts, or in using them for the payment and subsidizing of, for instance, doctors serving the prairie provinces in the sparsely settled agricultural districts. What has been urged already on the subject of taxation in the general reconstructive scheme, could be expanded so that the main principles of the suggestions could be applied to numerous other public necessities such as street railways, interurban electric railways, and possibly to that aeroplane service which is already under the serious consideration of experts in that war-born profession.

Before entering upon an entirely new line of thought, it would at this juncture perhaps be advisable to suggest that the State should take the initiative in the creation of a nation-wide system of aeroplane service, for the carriage not only of express letters and parcels, but even of passengers whose interests compel them to adopt the fastest possible means of travel. The State already has in the army air corps the nucleus of such a service, and it would be comparatively easy and simple to translate this body of trained men and all the necessary impediment from their war-like employment into the less hazardous but still useful civil employment outlined above.

The Problem of Demobilization

The suggestion above brings us easily to the consideration of the demobilization of the army, which will at some future date find itself again on Canadian soil. The composition of this body of men is so various that it is difficult to tell exactly in what proportions it will return to the soil, the desk, the factory, or the mine. But with the tempting offer made by the State of a piece of land and the loan of adequate capital to manage it, there is no doubt that at least a very considerable number of clerks and others, formerly of a sedentary and not too profitable an occupation, would rush to beat their swords into ploughshares. And it is possible and altogether probable that the remainder of the men, with the exception of the disabled, would return to their former professions and trades, after they have had the time to look about them for either old situations or new ones. It is advisable then for the State to create some method whereby it could, while still keeping these men in its pay, allow them the leisure either to look for employment, or to adapt themselves to others suited to them under direct State supervision. In order to do this and at the same time have the men as close to their home towns as possible, it is suggested that the men should be returned as quickly as possible to institutions, and perhaps if necessary to temporary buildings in the central districts of their home provinces. At such quarters colleges partaking of the nature of technical schools, should be opened up by the State, at which the men could be given instruction at the expense of the State. While this instruction was being given, it is natural that the men themselves would be casting their eyes about for situations, and it is possible that dependent on the skill of the instruction, employers would look to these colleges for high-class and efficiently-trained workers. By this means it is supposed that that large body of urban workers would be gradually but quickly absorbed into the civil community.

It remains then to devise some scheme for the demobilization of those men who, having no experience as agricultural workers, are desirous of taking up the land offered by the State. Already we have in all the prairie provinces well-equipped agricultural colleges to serve the purpose of training such men, and if, as is most probable, these colleges have not adequate accommodation for the number of men, it would be easy to build temporary hutments to serve that purpose. It should be possible to arrange that these men after training should be allotted farms in certain districts well served by

(*Continued on page* 138)

New Tariff Regulations

Customs Decisions

October 8th, 1918.

Sage leaves declared to be properly dutiable under Tariff Item 711.

Question of rating on steel bars contingent on value. Declared that the value shall be in accordance with Section 40 of the Customs Act.

Dried loganberries, when not containing sugar or other admixture, Tariff Item 95.

Children's books, entitled "The Bubble Book," in each of which are enclosed three small phonograph records—when the books are billed separately from the value of the records (although shipped together) the books are dutiable under Tariff Item 171 and the records under Item 597.

Jewellery Imports

Under the ruling of the Canada War Trade Board applications for import license covering gold-plated, silver-plated or gilt jewellery, when filed in due form, will be approved. The ruling also extends to gold and silver-plated pens, pencils, cigarette cases, vanity cases, thimbles and silver thimbles.

This ruling is made in connection with the restrictions on jewellery imports which went into effect on September 14th last.

Imports from the United Kingdom

In the October number of INDUSTRIAL CANADA (page 71), particulars are given of a general permit for the importation from the United Kingdom of various fabrics, etc., without the necessity of obtaining a Canadian import license. Under date October 15th, 1918, Customs Memo. 2247B, the public are notified that the War Trade Board has approved the admission into Canada of the following further articles, without license, when imported from the United Kingdom:—

1. Acids, all.
2. Agricultural implements.
3. Alcohol amylic, or fused oil.
5. Aloxite and boro-carbone.
6. Ammonia, muriate of.
8. Animal oils.
9. Animals, live, but excluding dogs for the improvement of stock.
10. Argols or wine lees.
12. Asbestos.
13. Asphalt.
15. Balata.
19. Blacking and all preparations for cleaning and polishing shoes.
21. Bone and horn, manufacture of.
22. Bones, hoofs and horns, unmanufactured.
23. Borax.
25. Broom corn.
28. Cacao (cocoa beans).
29. Cafeine, caffeina, theine, or trimethylxanthine.
30. Candlepitch, palm and other vegetable sterin.
32. Cars, carriages and other vehicles (except automobiles adapted or adaptable for passenger use, valued at $1,200 and upwards, f.o.b. place of manufacture).
33. Cassein or lacterene.
34. Castor beans and castor oil.
35. Cement for building purposes.
36. Chicory root, raw or roasted.
37. Chloride of lime.
38. Chromite.
39. Citrate of lime.
40. Clocks and watches and parts thereof.
41. Coal tar distillates, all.
42. Cocoa and chocolate prepared or manufactured.
43. Cocoanut meat, shredded, desiccated or prepared.
44. Cocoanut oil.
45. Copra.
46. Cork, unmanufactured, and manufactures thereof.
47. Corundum.
50. Cryolite.
51. Cyanide of soda.
52. Dairy products.
53. Dials.
54. Diamonds, industrial.
56. Earth, fullers'.
57. Earth, infusorial, and diatomaceous and tripoli.
59. Eggs, dried, frozen, prepared or preserved, and yolks of eggs.
60. Eggs of poultry.
63. Emery.
64. Explosives, fireworks, fire crackers and torpedoes of all kinds, except fulminates, and except gunpowder for war purposes.
65. Fans.
67. Ferro-alloys, all.
68. Ferro-manganese and speigeleisen.
69. Fish, fresh, cured or preserved.
71. Flax and flaxseed.
72. Fluorspar.
77. Gelatine and manufactures thereof.
80. Glue stock and raw hide cuttings.
81. Glue and glue size.
84. Grease.
88. Gypsum.
89. Hair of camel, goat and alpaca, manufactures of.
90. Hair, horse, artificial and manufactures thereof.
91. Hair, human, and manufactures thereof.
92. Hay.
93. Hemp.
94. Hides, skins, leather, tanned skins and manufactures of leather.
95. Honey.
96. Hops.
97. Indigo synthetic.
98. Iridium.
100. Ivory, vegetable or tagua nuts.
102. Kapoc.
103. Lead.
104. Lemon oil.
105. Licorice root.
106. Lime.
110. Magnesite.
111. Mantles for gas burners.
112. Manure salts.
115. Meats, fresh.
116. Meat products and preserved meats.
118. Mica.
119. Monasite sand.
120. Moss and sea weed.
123. Oils, all expressed vegetable, oil, soya bean.
126. Ores.
    Antimony, antimony ore, or any chemical extracted therefrom.
    Chrome, chrome ore, or any ferro-alloy or chemical extracted therefrom.
    Cobalt, cobalt ore, or any ferro-alloy or chemical extracted therefrom.
    Copper ore, and copper concentrates containing less than 60 per cent. of copper.
    Iron ore.
    Manganese, manganese ore, or any ferro-alloy or chemical extracted therefrom.
    Molybdenum, molybdenum ore, or any ferro-alloy or chemical extracted therefrom.
    Nickel, nickel ore, matte, or any ferro-alloy or chemical extracted therefrom.
    Tin ore and tin concentrates or any chemical extracted therefrom.
    Titanium, titanium ore, or any ferro-alloy or chemical extracted therefrom.
    Tungsten, tungsten ore, or any ferro-alloy or chemical extracted therefrom.
    Vanadium, vanadium ore, or any ferro-alloy or chemical extracted therefrom.
127. Paints and varnishes, non-mineral.
128. Palm oil.
129. Paper and manufactures thereof.
130. Paper stock crude.

131. Paraffin.
132. Peas, dried.
133. Pencils and pencil leads.
134. Penholders and pens.
139. Plants, trees, shrubs and vines.
140. Plates, electrotype, stereotype and lithographic, engraved.
141. Platinum.
142. Plumbago or graphite, and crucibles.
143. Pumice.
144. Pyrites.
145. Quebracho woods.
146. Rennets.
147. Rice.
148. Rubber manufactured goods, rubber reclaimed waste or scrap, gutta joolatong, gutta siak.
149. Shellfish.
150. Shellac.
151. Silk, artificial, and manufactures thereof.
153. Sisal.
156. Soda, all salts of, including nitrate of soda and cyanide of soda.
157. Sodium potassium or calcium nitrates.
158. Starch.
159. Stone and manufactures thereof.
160. Straw and grass unmanufactured and manufactures thereof.
161. Sugars.
162. Sulphur oil or olive foots.
163. Sumac, ground or unground.
164. Talc and soapstone.
165. Tanning materials.
166. Tar and pitch of wood.
167. Tea waste, siftings or sweepings.
168. Tin in bars, blocks, pigs or grain or granulated.
169. Tobacco and tobacco leaf.
171. Umbrellas, parasols, sunshades and sticks for.
172. Vanilla beans.
174. Vinegar.
175. Whalebone, unmanufactured.
178. Wolframite.
181. Zinc.

Restricted Imports

Under date October 7th, 1918, a ruling was issued that it will be sufficient for importers to procure a license from the Customs to import the following liquors when containing more than two and a half per cent. of proof spirits, without a permit from the Canada Food Board, viz.:—

Amylic alcohol, or fusil oil.
Ale, porter, lager and other beverages.
Lime juice and fruit juices.
Liquors, malt or other.
Wines.

Drawback of Duty on Liquid Sulphite Pulp Used Since 30th June, 1918, in the Manufacture of Newsprint Paper

The following regulations in the above matter have been made and established by Order in Council of 4th October, 1918, viz.:—

1. When imported liquid sulphite pulp, on which Customs duties have been paid, used on and after the first day of July, one thousand nine hundred and eighteen, in the manufacture of newsprint paper, there may be paid a drawback of ninety-nine per centum of all the duties paid on liquid sulphite pulp so used.

Provided, however, that such drawback shall not be paid unless the duties have been paid on liquid sulphite pulp so used as aforesaid within one month from the date when the newsprint paper was manufactured.

2. The said drawback may be paid to the manufacturer of newsprint paper subject to the following conditions, viz.:—

(*a*) The quantity of liquid sulphite pulp used and amount of duties paid thereon shall be ascertained;

(*b*) Satisfactory evidence shall be furnished in respect to the manufacture in Canada of the newsprint paper.

3. The claim for drawback shall be verified under oath before a collector of Customs, in such form as he shall prescribe, within one year after the manufacture of the newsprint paper. The Minister may also require in any case the production of such further evidence, in addition to the usual averments, as he deems necessary to establish the *bona fides* of the claim.

United States War Trade Board Regulation

EXPORTATION OF SECOND-HAND ARTICLES COMPOSED OF IRON OR STEEL.

The following regulation (W. T. B. R. 290), dated October 26th, 1918, has been issued by the United States War Trade Board, viz.:—

"The War Trade Board announce that on and after November 1st, 1918, all applications for licenses to export second-hand articles composed of iron or steel will be required to state on Form X that the commodity to be exported is 'second-hand.' Failure on the part of the applicant to describe second-hand material as such will be regarded as an inaccurate description of the goods and the applicant will be subject to the prescribed penalty therefor."

United States Priority Rules

Under present United States regulations the new form X-26 supplants Priority Certificate 15 for goods named in Schedule X-P. Where the new form X-26 is used in connection with goods named in Schedule X-P, priority in general is obtained automatically by the consignor with his license to export. However, if the consignor already holds export license but requires priority permit, the consignee should apply for such priority on form P.C. 15, and in such a case the consignee should state in his application the United States number of the export license held by the consignor.

In respect to commodities not on the United States conservation list, and which, therefore, do not require United States export license, but which, under the rules of the Priorities Division of the United States War Industries Board do require priority, the consignees should still apply for such priority on form P.C. 15.

Finally, if Class C priority incidental to any export license is not effectual, or if the certificate issued by the Priorities Committee on the automatic recommendation of the Washington Bureau of Exports, is not of effectual class, the parties concerned should apply to the Priorities Committee, with strong supporting reasons for improved rating.

Priority Rules of United States War Industries Board

Referring to the foregoing rules and regulations published in United States Circular No. 3, July 1st, 1918, the Canada War Trade Board state that the automatic priority ratings established under said Circular No. 4 do not apply to goods for export shipment from the United States; and that under the circumstances Circular No. 4 is of no particular value to Canadian companies other than to give them a general idea as to what priority class rating they may expect to receive on their applications.

On the 9th day of October, 1918 (W. T. B. R. 258), the United States War Trade Board issued the following instructions as to the necessary procedure with respect to obtaining export licenses, priority certificates, and permits of Director of Steel Supply for the exportation of specified commodities to any destination. These instructions are as follows:—

PROCEDURE WITH RESPECT TO EXPORT LICENSES, PRIORITY CERTIFICATES, AND PERMITS OF THE DIRECTOR OF STEEL SUPPLY FOR THE EXPORTATION OF COMMODITIES TO ANY DESTINATION.

1. The War Industries Board and the War Trade Board announce that they have jointly adopted the following rules and regulations for the purpose of simplifying the procedure of obtaining export licenses from the War Trade Board, priority certificates from the Priorities Committee of the War Industries Board, and permits from the Director of Steel Supply of the War Industries Board.

2. The War Industries Board announce the withdrawal of its regulations as set forth in P. C. Form No. 18, July 3, 1918, paragraph 6, requesting that applications for license to export iron or iron and steel products should not be filed with the War Trade Board unless the orders are covered by either priority certificates or permits from the Director of Steel Supply.

3. On and after October 14, 1918, applications for licenses to export any article on Schedule "XP," annexed hereto, should be filed with the War Trade Board, and must include the following papers properly executed:

(*a*) One application, Form X, to which should be attached

(*b*) One each of such Supplemental Information Sheets as may be required by the rules and regulations of the War Trade Board to be used in connection with shipments of certain commodities and shipments to certain countries, and

(*c*) New Supplemental Information Sheet, Form X-26, which will be ready for distribution by the War Trade Board on and after October 14, 1918.

4. Applications which have Form X-26 attached will not require Form X-2.

5. The Priorities Committee of the War Industries Board has awarded priority classification "C" to all articles (on which priorities are issued) which are on the Export Conservation List of the War Trade Board and are covered by export licenses issued on and after October 16, 1918. No Class "C" certificates will be issued with such licenses. If the article specified on the licenses is one on which priorities are issued, and if no individual priority certificate accompanies the export license, the license itself will be evidence that the articles covered by it have been automatically awarded priority classification "C."

6. Export licenses issued on and after October 16, 1918, under these regulations, covering commodities on which priority certificates are issued, will be accompanied by individual priority certificates of the Priorities Committee when in the opinion of the Priorities Committee a higher rating than Class "C" is of the Priorities Committee a higher rating than Class "C" is warranted. These priority certificates will be issued by the Priorities Committee and forwarded with the export license without further request from the applicant.

7. Export licenses issued on and after October 16, 1918, for the exportation of iron or steel or the products or manufactures thereof, which are not covered by priority classification, will in themselves constitute a permit and approval from the Director of Steel Supply for the filling of the orders for the quantity of iron or steel specified in such export license to the extent that such delivery will not interfere with the delivery when and as required of orders covered by priority.

8. It is the policy of the War Industries Board and the War Trade Board to discourage and prevent exporters and manufacturers from purchasing, manufacturing, or producing articles on the Export Conservation List for the fulfillment of specific export orders until an appropriate export license has been issued. Instances have come to the attention of the War Trade Board in which manufacturers before obtaining export licenses have manufactured articles for specific export orders, which articles, while useless for domestic consumption, could not under the regulations of the War Trade Board be exported. It is essential for the proper conservation of commodities in the United States that this practice be stopped, and it is the purpose of the War Trade Board to refuse licenses to exporters who do not conform to this policy.

9. The Priorities Committee announces that it undertakes, where necessary, to administer priority in the production of all raw materials and finished products save foods, feeds, and fuel. The Preference List promulgated by the Priorities Board forms the basis for the distribution of fuel. Priority is being administered generally on iron and steel products, copper and brass products, electrical equipment, and the products of which any of the above form an integral part. Priority is not being administered at this time on lumber or lumber products, paper or paper products, chemicals, brick, cement, lime, hides, pig tin, tin plate, mine products and numerous other items which cannot well be enumerated. It is not possible to prepare lists in detail covering prioritied or non-prioritied products, and even in those mentioned above exceptions will from time to time occur. Any inquiries with respect to the commodities upon which priority is being administered should be addressed to the Priorities Committee of the War Industries Board.

VANCE C. MCCORMICK, *Chairman.*

SCHEDULE XP.

Pig iron.
Ferro-Silicon.
Spiegeleisen (frequently described as specular iron and mirror iron).
Iron and steel.
Scrap.
Ingots.
Billets.
Blooms.
Slabs.
Sheet bars.
Skelp.
Wire rods.
Alloy steel.
High-speed steel.
Tool steel.
Bars (including flat, 6 inches wide and narrower).
Hoops and bands (including hot and cold rolled strip steel).
Shapes (including beams, angles, channels, tees and zees).
Fabricated structural steel (including beams, angles, channels, tees, zees or plates ⅛ of an inch thick or heavier, punched or shaped, including tanks made of plates ⅛ of an inch thick or heavier).
Plates (all classes, ⅛ of an inch thick and heavier and wider than 6 inches, and circles over 6 inches in diameter. This includes No. 11 U.S. gauge but not No. 11 B.W. gauge)
Sheets (all classes, under ⅛ of an inch thick).
Boiler tubes.
Mechanical tubes.
Boring tubes.
Oil well casing.
Line pipe.
Drive pipe.
Cast-iron pipe.
Wrought iron and steel pipe.
Poles.
Wire rope, cable and strand, consisting of 6 wires or more.
Rails and splice bars.
Frogs and switches.
Railroad tie plates.
Railroad track spikes.
Railroad track bolts.
Boat spikes.
Wire.
Wire nails.
Wire spikes.
Cut nails.

The Association has ample supplies of Forms X and X-26, and same will be sent to members on application.

UNITED STATES SUPPLEMENTAL INFORMATION SHEET FORM X-2.

A revised Supplemental Information Sheet Form X-2 (October, 1918), has been issued by the United States War Trade Board. This form is to be attached to applications for licenses for the exportation of certain conserved commodities, as indicated on the United States export conservation list. The old Form X-2 should no longer be used in connection with applications for United States export licenses.

Supplies of this new Form X-2 are on file with the Association for the use of members.

Among the Industries

Under this heading are published items of news of current interest concerning the activities of Canadian manufactures. Information about changes of interest, enlargement of plants, and plans for future developments are always welcome, and are published free of charge, provided they should not be properly classified as advertisements

***Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin.**

BRITISH COLUMBIA

Coquitlam.—The Pacific Construction Co., have received an order from the French Government for two wooden steamships of 1,500 tons capacity each.

Graves Point.—Work has started for a $1,250,000 by-products plant for Granby Consolidated Mining, Smelting & Power Company.

New Westminster.—The Timberland Co.'s new mill at South Westminster is now almost completed. The mill will have a cutting capacity of from 100,000 to 150,000 feet per day, and will cover an area of about 66 acres.

Nanaimo.—Local capital is behind a company formed here to purchase an eight-acre site and construct a three-ways shipbuilding slip to fill a contract for six steamers, expected from an allied Government.

Point Grey.—Two units will be added to the Marpole plant of Graham's, Limited, as soon as they can be installed.

Port Moody.—Lawrence & Rherin will build an electrically-operated sawmill of 15,000 feet capacity in the Surrey District.

Powell River.—Fire has destroyed mills owned by the Powell River Pulp & Paper Co., with a loss of $40,000. Company will rebuild at once.

Queensboro.'—Lumber Products Co., Limited have commenced partial operation of their new mill. The planing mill will not be equipped for two or three months yet.

Steveston.—Leslie Lumber Co., will rebuild lumber sheds which were recently destroyed by fire.

Vancouver.—Hendry Foundry Co., plan to make considerable extensions.

The American Nitrogen Products Company, an American corporation with capital of $2,000,000, head office Seattle, have entered into a contract with the British Columbia Electric Railway Company for the supply of a large block of electric power and have commenced construction in close proximity to the Lake Buntzen power plant of the company on the North Arm, Burrard Inlet, of a nitrogen fixation plant. Electric furnaces are being built for the production of nitric acid by the Arc process. The initial consumption of power will be 3,500 kilowatts and it is expected progressively to increase this consumption. The plant is being constructed with a view to the production of agricultural fertilizer after the war and is the first electro-chemical plant in Western Canada.

Plans are being made for a wholesale fish warehouse, costing $10,000 for the Defiance Packing Company.

Harrison & Lamond, industrial engineers, will locate on the industrial island, Vancouver, at the west side of Granville street bridge on lot 3, where they propose erecting a large work shop to house all their equipment. This firm, which was organized in 1902, under the name of Harrison & Wall, has carried out considerable important building work in British Columbia. It now plans to specialize on road work, in which connection it may be noted that it has made application for patent rights on a new machine for road-making purposes.

The Columbia Block and Tool Co., foot of Smythe St., will build a steel foundry, 200 x 50 ft.,; also machine shop and pattern shop.

The Tudhope Electric Metals Co., will build an electric foundry. M. P. Cotton Co., Limited, False Creek, have the general contract.

The Vancouver Milling & Grain Company, Limited, has taken out a permit for the erection of a third story on their premises, Smithe St., to be used as a flour mill. The work will cost $5,000.

Victoria.—Contracts for the construction of two steel steamers have been let by the Dominion Government to the Victoria Machinery Depot.

The first of the nine wooden auxiliary schooners which are being constructed by the Cholberg Ship Company, is now well under way, the erection of frames having commenced recently, and with the newly installed machinery working at top pressure, it is expected that rapid progress will be made with the contracts. Work on the third keel is now progressing, and the laying out of the fourth way is also being undertaken. Timber decking is also being placed on the whole of the area surrounding the slips, in order that the handling of supplies may not be hindered by poor working conditions.

The Foundation Co., of this city, has taken over the yard recently operated by Cameron-Genoa Mills Shipbuilders, Limited, at Point Ellice. This is known as the company's No. 2 yard. The keels of three vessels have been laid, the first of an order of twenty for the French Government. All vessels will be fully equipped in the company's own yards.

MANITOBA

Winnipeg.—West-Woods, Limited, have taken over the manufacturing trade and equipment of D. Ackland & Son. The factory has a floor space of over 35,000 square feet, and at present over one hundred employees are on the payroll. The product covers an entire range of carriage, wagon and sleigh woods, with automobile rims, spokes, etc.; a complete line of finished and ironed wagon doubletree sets, hitches and eveners, with many other small lines essential to the farmer's requirements. The manager and superintendent of the organization is C. W. Furrow, who combines a wide experience in the best American and Canadian factories. Mr. Furrow has been in the wood goods manufacturing industry all his life, and is an expert in factory operation and large production methods.

The Globe Bedding Co., Limited, 460 Logan Ave., will build a one-storey addition to warehouse, concrete brick construction with tar and gravel roofing.

NEW BRUNSWICK

Pinder.—It has been decided by the New Brunswick Department of Agriculture to erect flour mills at Grand Falls, Perth, Chatham and Pinder, York County. Mr. George Pinder, of Pinder, proposes to erect one of these mills at a cost of $10,000. Mr. G. C. Reinsborough, of Chatham, will also erect a $10,000 mill.

St. John.—The McAvity machine plant, Marsh road, is rapidly developing into one of the largest enterprises of the kind in eastern Canada. The 400-foot unit, which was completed in such record time in 1916, has recently had a unit of similar dimensions added to it and this is being quickly filled up with machinery. But even with this enlargement the firm are not satisfied, for within a few weeks the erection of another large foundry building has been begun on the southern end of the company's lot near Westmorland road. Grant & Horne, who constructed the original unit have the contract for the later additions.

NOVA SCOTIA

Annapolis Royal.—The Annapolis Shipbuilding Company launched a tern schooner of 1,100 tons in September, and expects to launch one of about 1,000 tons early in December. It is reported that a repair dock is under construction, suitable to handling vessels up to 5,000 tons.

Barrington.—It is reported that local financial interests are considering the question of establishing a shipyard here. In former years many notable schooners had been built here, and it is proposed to revive the shipbuilding industry.

Halifax.—A contract has been let for the erection of a $55,000 machine building for the Halifax Shipyards, Limited.

Sydney.—A recently-organized concern, in which Mr. W. N. Macdonald, of Sydney, is interested, is building a 400-ton concrete steamer at North Sydney, and it is expected that the vessel will be ready for launching early in November. It is 130 ft. long, 12 ft. deep, with a 27-foot beam. The local company also intend to build a concrete floating dry-dock, capable of carrying 5,000 ton craft.

A one-storey brick engine house, costing $80,000, is being erected by the Dominion Iron & Steel Co., Limited.

The recently completed coke ovens at the Dominion Iron and Steel Co.'s plant in Sydney, which have been undergoing a preliminary heating process, are now ready for producing coke. The new ovens, which are part of the programme recommended two years ago, and since carried out, will, in conjunction with the remodelled and enlarged No. 1 blast furnace ensure a regularity of production and quality of steel not hitherto possible. In the presence of President Workman and plant officials, the first battery of the new coke ovens was placed in operation. The sixty new ovens will produce 1,300 tons of coke a day.

QUEBEC

Cap de la Madeleine.—Several contracts have been awarded in connection with the erection of a foundry and machine shop for the Tidewater Shipbuilders, Limited.

Levis.—The Lauzon Engineering Co., Limited, has changed its name to Lauzon Engineering, Limited. There is no change of directors or staff. Mr. Henry Paquette is the managing director.

Montreal.—Two big real estate deals which foreshadow large construction undertakings have recently been negotiated in Montreal. The Canada Cement Co., have bought the race track property in the northeast end of the city, known as Delorimier Park, at a cost of some $250,000, and a tract of land across from the race track, comprising about thirty acres, has been acquired by the Canadian Consolidated Rubber Co., the price being in the neighborhood of $340,000.

Contracts have been awarded in connection with the erection of a $100,000 one-storey brick extension to the plant of the Canadian Car & Foundry Co.

Work has started for an addition to rubber plant of the Canadian Consolidated Rubber Co., Limited.

The Canada Cement Company have secured a large contract for munitions from the United States Government and will likely start to build a plant costing $1,000,000 at once.

Three Rivers.—The Tidewater Shipbuilders' Limited, are installing buildings and plant, at an estimated cost o $500,000, for the manufacture of marine engines and boilers

An extension costing $200,000 will be made to the yard of the Three Rivers Shipyards, Limited.

Work has started for a machine shop costing $50,00(for the Canadian Steamship Co., Montreal.

ONTARIO

Almonte.—William Thoburn has decided to rebuild and equip his flannel mill, destroyed by fire a few weeks ago.

Brantford.—Kerr & Goodwin are to erect a one-storey, mill and steel, gas shell factory.

Motor Trucks, Limited, are erecting a $4,500, one-storey frame cafeteria.

Kerr & Goodwin have been awarded a contract by the United States Government for 175,000 semi-steel gas shells. The order involves the expenditure of $1,500,000 and the erection of a new plant by the firm.

Chatham.—At a special meeting of the Chatham City Council an agreement was signed between the city and the Denby Motor Trucks Company calling for the erection of a $20,000 plant here, to be ready for occupancy by March 1, next. The plant is to employ at least thirty hands and to pay at least $20,000 a year in wages. The company is newly incorporated in Canada, with a capital stock of $200,000. The city will vote on giving the company three acres of land now, and an additional acreage will be made available if the company needs it within four years.

Fort William.—The Canadian Car and Foundry Co., have completed the construction of twelve mine sweepers at their shipyards here.

A site has been purchased by the Plymouth Cordage Co., of the United States, whereon a factory is to be erected. The company will eventually be paying something like $1,500 per year, in taxes and the cost of industrial spur will amount to something like $6,000. In addition to this, the city may have to divert its present drainage system on the site purchased by the company which will cost between $5,000 and $7,000.

The Canadian Car & Foundry Co., have recently secured a contract from the United States Government for the construction of twenty-five steel vessels.

Guelph.—Work is to start at once for addition to munition plant for Page-Hersey Iron & Tube Co., Limited.

Goderich.—Work is to start for a $75,000 one-storey, concrete and brick boiler shop for National Shipbuilding Co.

Hamilton.—A two-storey brick addition is being made to the factory of Robinson & Sons, 145 McNab St., N.

An addition costing $20,000 is being made to the plant of the Acme Stamp & Stencil Works, 34 Sydney St.

A $15,000 one-storey brick addition is being made to the factory of the Canadian Cotton Co., James St., N.

Work has started on an addition to the factory of the Hamilton Cotton Co., Mary St.

London.—General Motor Co., Pittsburg, will build a $50,000 brick motor truck factory here, work to commence shortly.

Work has started on a glove factory for the Hall-Dent Glove Co., Richmond and Pall Mall Sts.

Plans are to be prepared for a knitting factory to cost $150,000 for Penman's, Limited.

Merrickville.—It is understood in Merrickville that Mr. Talbot, of the Percival Plow and Stove Co., is negotiating for the purchase of the Kyle malleable works there and should he fail to secure its control, will erect a large malleable foundry in the vicinity of the C.P.R. station at Merrickville.

Oshawa.—An amalgamation of the interests affiliated with the General Motors Corporation is about to take place. In order to take care of the after-war expansion, which the directors of the company believe is in store for gasoline-propelled vehicles of all kinds, including tractors, the consolidation of the McLaughlin Motor Car Co., Limited, Chevrolet Motor Co., of Canada, Limited, and McLaughlin Carriage Co., Limited, with General Motors Company has been consummated. The transfer will take place on Nov. 1st. All the plants at Oshawa will be operated to full capacity as soon as the raw material situation improves.

Ottawa.—The Beach Foundry Co., are considering plans for an addition to their foundry, costing about $75,000.

Owen Sound.—A two-storey iron and frame factory has been erected for the Northern Bolt, Screw & Wire Co.

Pembroke.—A contract has been let for a munition plant costing $85,000, to be built for the Pembroke Iron Works Co.

Perth.—The large soap factory being built by the Andrew Jergens Co., of Cincinnati, Ohio, is now almost completed. The plant consists of a factory building and a building for the power plant, oil refining plant and glycerine evaporator.

Port Arthur.—On October 5, the Port Arthur Shipbuilding Co. launched the steamer, "War Horus," built to the order of the Imperial Munitions Board. It is a steel, screw, single-deck, general freight-carrying ship with a straight stem and semi-elliptical stern with poop, bridge and forecastle, built on the transverse system with inner bottom throughout. General dimensions are as follows:—length over all, 261 feet; length, B.P., 251 feet; molded breadth, 43 feet, 6 inches; molded depth, 23 feet; gross tonnage, 2,240; deadweight tonnage, 3,400. This company delivered "T.R.—39," a steel trawler of the Castle class on October 1, and another of the same class, "T.R. 40" has since been completed.

Sandwich.—Announcement has been made through the Chamber of Commerce of the establishment of a new industry to be known as the International Castings Co., Limited. Property has been purchased in Sandwich, upon which a foundry will be erected for the manufacture of grey iron and semi-steel castings, upon a large scale and the most modern equipment available will be installed. The land acquired is 340 by 633 feet in extent, and is located in the district bounded by Back St., the Essex Terminal Railway, Chippewa St.

Toronto.—A $20,000 mill and brick addition will be made to the packing plant of Matthews, Blackwell, Limited.

Contract has been let by the Galena Signal Oil Co., 134 Royce Ave., for a $60,000 concrete oil plant.

A $140,000 five-storey, reinforced concrete warehouse is being erected by the Massey-Harris Co., 915 King St. West.

The sales and supplies departments of the Canadian General Electric Company, are moving into their new quarters in the new building which has been erected on the property adjoining the company's head office building at the corner of Simcoe and King streets. The executive, engineering and foundry purchasing department's offices will remain in the main building on the corner.

A contract has been let for a $10,000 three-storey addition to the factory of the Queen City Vinegar Co., 19 River St.

A $6,500 addition is being made to the factory of the Booth-Coulter Copper & Brass Co., Limited, 115 Sumach St.

A $10,000 addition is being made to the factory of the American La Franc Fire Engine Co., of Canada, 195 Weston Road.

The Harris Abattoir Co., Limited, are erecting a box storage building of a size, 55 x 96 feet.

The shop formerly occupied by the Hunter Structural Steel Co. has been taken over by Burns and Roberts, of this city, and is being used for tank and other plate work.

Wilson, Lytle, Badgerow & Co. have taken out permit for addition, costing $22,000, to their factory on Duke St.

Trenton.—The great $5,000,000 explosives plant of the Imperial Munitions Board, operated as the British Chemical Works, of the British Explosives, Limited, has been destroyed by fire. Rebuilding operations have been commenced.

Windsor.—Site has been purchased and building may start shortly for motor truck factory costing $50,000, for General Motors Corp., 84 Congress St. E., Detroit, Mich.

Plans are to be prepared at once for a $150,000 reinforced concrete steel and brick distributing plant for British American Oil Co., Royal Bank Building, Toronto.

Woodstock.—Walls are going up for an $18,000 factory for Canadian Hosieries, Limited.

Tarvia for Private Estates

The Erickson Company, of New York, have just prepared for the Barrett Company an interesting little booklet, illustrating the use of Tarvia for paving driveways in private estates. The pictures, which are numerous and most attractive, tell the story eloquently. It is pointed out that under skilful management many types of surface can be produced, from a smooth surface in keeping with walled areas and the proximity of buildings to stone chip and gravel surfaces, in keeping with less conventional landscape and architectural effects. Examples of successful work are widely scattered throughout the United States, Canada, the South American Republics and other countries, so that it is not difficult to find types of this class of construction in order to view its possibilities.

Trade Enquiries

These enquiries come into our hands from various sources. The Weekly Bulletin of the Department of Trade and Commerce, from which the enquiries indicated in the sub-heading allotted to them are taken, should be read regularly by those interested in foreign trade. It will be sent free on application to the Department at Ottawa. The names connected with all those enquiries can be furnished direct from the Commercial Intelligence Department, Canadian Manufacturers Association, Toronto.

DOMESTIC TRADE ENQUIRIES

226. **Viscose.**—We have an enquiry from a manufacturing chemist in Vancouver for an artificial sausage skin, the technical name of which is Viscose. We shall be glad to put interested manufacturers in touch with the enquirer.

227. **Agencies.**—A sales organization, which has been established for a number of years and has branches in all the important cities in Canada, is forming a separate specialty department and wishes to get in touch with manufacturers who desire to market their products.

228. **Machines.**—An enquirer in British Columbia would like to hear from manufacturers of machines used for turning canvas gloves inside out after they have been sewn together.

IMPORT TRADE ENQUIRIES

229. **Palma and Lechuguilla Ixtle.**—A firm in Texas, importers of Mexican products, would like to receive the names and addresses of parties interested in the importation of palma and lechuguilla ixtle.

EXPORT TRADE ENQUIRIES

230. **Agencies.**—We are in communication with a gentleman in Toronto who is desirous of getting in touch with manufacturers who wish to be represented in Great Britain.

231. **Pliers.**—A New York firm, who are in the market to purchase 100,000 6-inch, 7-inch and 8-inch side cutting pliers, would like to communicate with manufacturers or dealers who have these or any part of them in stock. They wish to receive samples, prices and full particulars as to when shipment could be made.

232. **Shovels.**—A firm in Durban desires to obtain 200 dozen No. 5, 14 x 11½-inch square mouth shovels.

233. **Agencies.**—We are in communication with a firm in Durban who are anxious to represent manufacturers of telephones, electric cable wires, fuse wires, electric bulbs, house lamps, stoves, kettles, grills, irons and mining and sugar machinery.

234. **Agencies.**—A firm of commission merchants in the West Indies desire to represent Canadian manufacturers of flour, fish and tea.

EXPORT TRADE ENQUIRIES TAKEN FROM THE WEEKLY BULLETIN OF THE DEPARTMENT OF TRADE AND COMMERCE

235. **India and Straits Settlements Agencies.**—An important trading company having connections in India and the Straits Settlements would like to get into communication with Canadian manufacturers with a view to arranging agencies for after war business.

236. **Agency.**—Manufacturers' agent leaving for Glasgow, Scotland, after the war is desirous of getting in touch with Canadian manufacturers who require representation in Scotland.

237. A Japanese importer desires to secure 500,000 feet of molybdenum rods per month to be used for making molybdenum filaments for electric lights. If impossible to make shipments at present would be glad to make arrangements for after the war business.

238. **Wire Nails.**—A London firm wishes to be placed in communication with Canadian manufacturers of wire nails and iron hooping for wooden cases, which are required for the Persian Gulf.

239.—**Magnesite.**—A Manchester firm is open to import at the present time, or make arrangements for after war trade, magnesite (magnesium carbonate).

240. **Wax Paper.**—An important firm in Tokyo desires to obtain about 2,000 reams of wax paper, sizes 20 by 30-inch (14 pounds). Samples of such paper may be seen at the Commercial Intelligence Branch, Department of Trade and Commerce, Ottawa.

241. **White News Paper.**—A large Japanese firm is anxious to get in touch with Canadian exporters of white news paper for present and future deliveries.

242. **Enamelled Paper.**—A paper-importing company desires to obtain enamelled paper, size 31 by 43 inches, 80 pounds per ream. The last shipment of such paper was obtained at 9¾ cents per pound, but present quotations are $11.35 per hundredweight. Any Canadian firm who could compete with the above price would do well to communicate with the firm in question. Samples may be seen at the Department of Trade and Commerce, Ottawa.

243. **Bicycle Accessories.**—A Japanese importing house desires to obtain bicycle chains, free wheels (coaster brakes), spokes, and nickel ball-bearings from Canadian manufacturers. This firm recently placed an order for yen 20,000 worth of free wheels in England and yen 70,000 of chain. They would like to receive samples of each article which they would be willing to pay for. They intimated a large business could be done if Canadian firms could supply the materials in question.

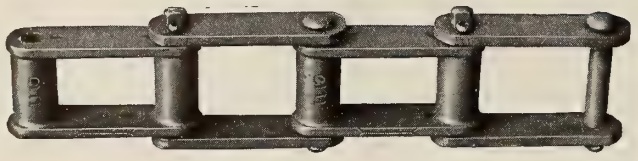
244. **Wire Nails.**—A Manchester firm with extensive connections all over the United Kingdom is open to purchase large quantities of wire nails.

245. **Birch Squares.**—A Manchester firm is open to purchase large quantities of birch squares sawn from clean birch, sound, straight-grained timber, free from heart, shakes, and bad knots and fully seasoned, to hold the size when dry. The sizes required are: 1⅛-inch by 1⅛-inch, 1¼-inch by 1¼-inch, and the lengths are 75 per cent.—4 feet balance optional in 3½, 3, 2½ and 2 feet lengths.

246. **Electrical Overhead Hoisting Machines.**—A firm of machinery merchants in Australia desires to receive catalogues from Canadian manufacturers of electric overhead hoisting machines to lift one to five tons, together with quotations f.o.b. at Canadian seaboard.

247. **Agency.**—A firm in Milan would act as sole agents for Canadian companies on any of the following products: Metals, lumber, machine tools, electrical and railway material, chemical and colonial products.

248. **Agency.**—Manufacturers' agent shortly visiting Australia, New Zealand and South Africa, on a business trip is open to take up representation of Canadian industries. Arrangements can be made either for immediate or after the war business.



SHELL CONVEYORS

YOUR production of shells is limited by your ability to handle your material efficiently. Manufacturing conditions can be greatly improved by the installation of well-planned conveyors, which will increase production, save labor and systematize and regulate production.

With them everything is arranged so as to secure the highest mechanical efficiency with the greatest convenience and least strain for the workers.

We are prepared to furnish from our TORONTO FACTORY all types of LINK-BELT Conveyors arranged to handle shells in all stages of manufacture.

Our engineering department will lend you valuable assistance at your request.

CANADIAN LINK-BELT COMPANY, LIMITED

Manufacturing Plant and Offices
WEST WELLINGTON ST.
TORONTO

An Interesting Installation

The Storage Battery Plant at the Mount Royal Tunnel which is Provided for Emergency Work

One of the interesting events of the past month has been the opening of the Mount Royal tunnel in Montreal. The completed work has many features of interest, not the least or which is the installation of storage batteries for working all switches and emergency lighting in the West Portal Sub-station at such time as the power might fail. The outfit consists of sixty-four cells of Titan sealed batteries of a rated capacity of 135 ampere hours, these being made by the Northern Electric Company of Montreal.

The current requirement for switch operation is a maximum of seventy-five amperes for a period of from four to eight seconds. The cells being sealed in, come fully charged and the connections being bolted, render them easy to install in a minimum amount of time. Batteries



of this type are furnished from stock by the Northern Electric Company, Limited, and this particular set was in and working within a day of the receipt of the order.

The art of storage battery manufacture and merchandising has reached the perfected state wherein the multitudinous demands may be met in the shortest possible time.

For emergency work in operating switches, reserve lighting or various breakdown service the storage battery has a place that careful operators do not overlook. They afford priceless insurance against serious accidents and delays. Interesting data on the application of storage batteries for all types of emergency service, marine lighting, automobile starting and lighting, farm lighting, fire alarm and signal service, telephone service, mine locomotive and all electrical vehicle service may be had by writing the Northern Electric Company, Limited, at Montreal, or any of its branches.

Opens Agency at Buenos Aires

Mr. Diego Campbell Lea advises Industrial Canada that he has severed his connection with the firm of Peters Hermanos, of which he was for years general manager, and has opened an office of his own in Buenos Aires, where he will carry on the business of manufacturers' and shippers' agent. His connection for over twenty-five years with the wine and spirit trade, as well as groceries, provisions, tea, coffee, etc., and his wide experience of the market, places him in a position to transact business for his clients under the most favorable conditions.

Maritime Chemists Form Association

Chemists from Leading Industrial Plants and the Universities Met in Halifax and Organized.

At an enthusiastic meeting of representative chemists in the new Science Building of Dalhousie University last month, there was formed the first chemists' society in the maritime provinces. It is to be known as the Maritime Chemists' Association. For the first year of its existence it will be an independent organization; but at the next annual meeting the question of becoming a branch of one of the large chemical societies will probably be considered. Several of the charter members of the new association are already members of the Society of Chemical Industry or of the American Chemical Society, or of both. The next meeting of the association will be held early next summer.

Besides chemists resident in Halifax the following were present from other parts of the maritime provinces: A. F. Blake, Atlantic Sugar Refineries, St. John; Professor L. C. Harlow and J. G. Archibald, Provincial Agricultural College, Truro; Professor D. N. Hill, Acadia University; Professor R. K. McIntyre, St. Francis Xavier; G. F. Murpry, N.S. Steel & Coal Co., Trenton; D. J. Kerr, chief chemist, Nova Scotia Steel & Coal Co., Sydney Mines; I. C. Mackie, chief chemist, W. C. Carter, superintendent of the Acid plant, and C. E. Wallin, superintendent of the benzol plant, Dominion Iron & Steel Co., Sydney.

The following were elected officers of the association: President, Professor E. Mackay, Halifax; vice-presidents, A. F. Blake, St. John, and Professor D. W. Hill, Wolfville; secretary-treasurer, H. B. Vickery, Halifax; executive committee, the preceeding officers with Professor R. K. McIntyre, Antigonish, and C. E. Wallin, Sydney.

Predicts New Manufacturers' Union

Plans for the organization of a National Federation of Manufacturers' Councils, to meet wartime and after-the-war emergencies, were announced in New York recently by Warren C. King, president of the Manufacturers' Council of New Jersey. According to Mr. King, organization will be effected on the plan of the American Federation of Labor, embracing the principle of local organizations in all manufacturing communities, which will form state councils. These, in turn, will furnish representatives for the national body. "We expect to have enrolled in the national federation virtually the entire manufacturing strength of the country," Mr. King said. "We are organizing not with the idea of fighting labor, but with the idea of co-operating with labor."

Condensed Advertising

WANTED

A Glue and Sandpaper Salesman. State experience and salary expected. Address, Box 102, INDUSTRIAL CANADA.

WANTED

Thoroughly practical and experienced Mechanical Engineer, with executive ability, for position as Chief Engineer in a large steel working plant, chiefly engaged in the production of shell and heavy Marine Forgings; knowledge of Hydraulic Presses and Pumps desirable; good position and salary for right man. Apply Canada Forge Company, Limited, Welland.

WANTED

Graduate nurse with considerable health welfare, surgical and social experience; would take charge of a first aid and health welfare department, for a large manufacturer. Salary, $1,800 to $2,000. Write Box 110, INDUSTRIAL CANADA, Toronto.

WANTED

Factory Manager or Superintendent. A splendid opening for an experienced, capable and ambitious man, to take charge of the manufacturing end of our business, with a place on our Board of Directors, and a financial or working interest in our company. No investment necessary, although preferable. Experience in the manufacture of farm implements, and particularly threshing machinery, especially desirable. Address, Farm Machinery Mfrs., Ltd., Saskatoon, Canada.

EXPERT TRANSLATION

Commercial, confidential correspondence, advertising, literature, catalogue, etc. English to French and French to English; high standard work typewritten; (moderate rates). Special monthly arrangement for translation ordinary correspondence both ways. A. de Villers, 106 Second Ave., Viauville, Montreal.

The Ontario Government's housing scheme is to be taken advantage of in the erection of dwellings in Hamilton. The McKittrick Syndicate, which owns property in West Hamilton, has made an agreement with the Works Committee to build one hundred houses on the site as soon as the city lays a sewer to serve it, and offer them for sale under the provisions of the Housing Act.

Steel Bridges

Railway and Highway Truss, Girder and Beam Spans of all types.



THE MARITIME BRIDGE COMPANY, LIMITED - New Glasgow, Nova Scotia

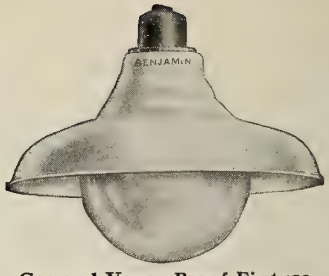
Benjamin



Yard Lighting Angle Fixture



Reflector Socket



Gas and Vapor Proof Fixture

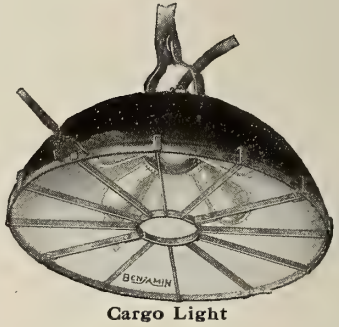


Water Tight Marine Fixture

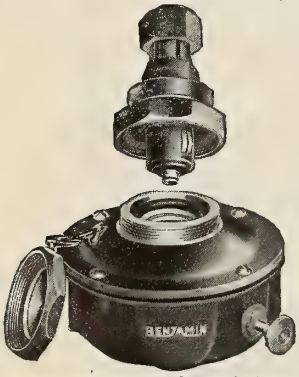
Electrical Specialties

For Industrial and Marine Use

Illustrated here are some of the BENJAMIN PRODUCTS, the purposes of which, and their application to the requirements of factories, railways, docks, shipbuilding, warehouses, etc., are described in our catalogues. Write for information applicable to your particular needs.



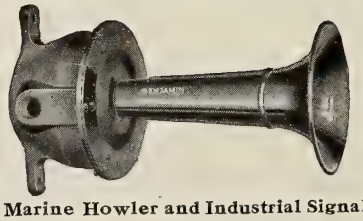
Cargo Light



Water Tight Marine Fitting



Marine Buzzer



Marine Howler and Industrial Signal

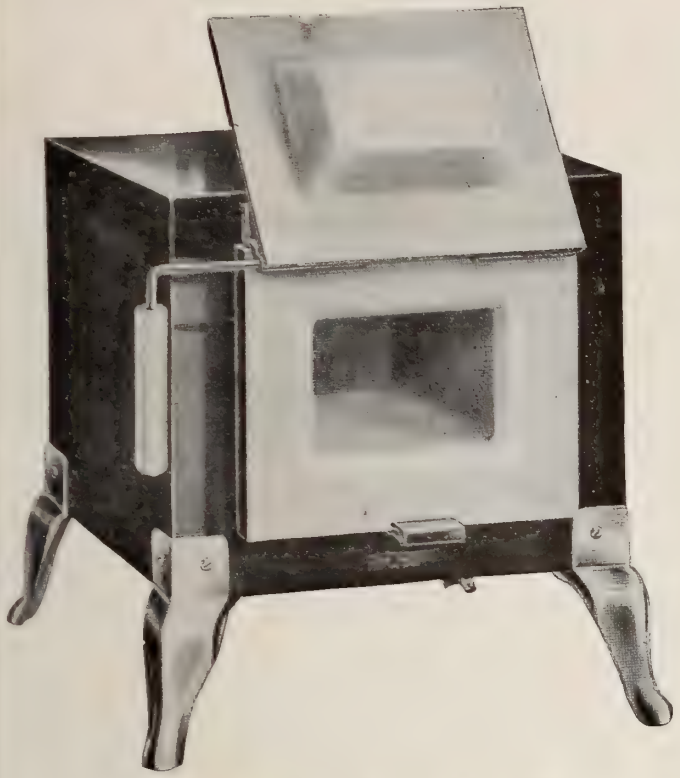


Marine Button and Gong Water Tight

Benjamin Electric Mfg. Company of Canada, Limited

11-17 CHARLOTTE STREET, TORONTO

Hughes Electric Furnaces



ANNEALING FURNACE

for treatment of carbon steels, for bluing, annealing and preheating high-speed steel, where absence of scale or warping and elimination of dirt common to heating with gas or other fuels is an important consideration.

Gives uniform distribution of heat, and rheostat used in connection with furnace gives perfect temperature regulation from room temperature to 1800 degrees.

This furnace is ideal for treatment of delicate dies and tools where an exact control of temperature is essential for perfect results.

Cat. No.	Outside Dimensions L.	H.	W.	Size Muffle	Shipping Weight
423x1	10 in.	7 in.	8 in.	$2\frac{1}{2}$x$3\frac{3}{16}$x$5\frac{1}{2}$	40 lbs.
423x2	12 in.	8 in.	9 in.	3x$4\frac{1}{4}$x$8\frac{1}{2}$	50 lbs.
423x3	16 in.	12 in.	$13\frac{1}{2}$ in.	$3\frac{3}{4}$x$5\frac{1}{4}$x$10\frac{1}{2}$	60 lbs.
423x4	18 in.	14 in.	16 in.	$5\frac{1}{4}$x$7\frac{1}{2}$x$12\frac{1}{2}$	75 lbs.

Other sizes made up to order.



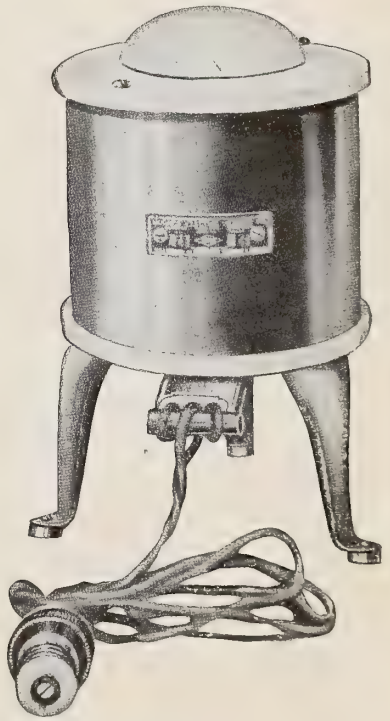
TUBE FURNACE

which operates at a current consumption of 350 watts, and will maintain temperature of 1800 degrees Fahrenheit for a continued period.

It may be used for checking pyrometer couples, ash determinations, organic and inorganic combustion work.

CRUCIBLE TYPE ELECTRIC FURNACE

For use in determining the decalescent and recalescent point of steel, melting alloys, ash determination and general research laboratory work.



We feel that we have filled a demand in the way of furnaces for all research laboratory work, tool rooms, heat treatment of steel, alloys, etc.

Our furnaces, being electrically heated, all dirt and inconvenience common to heating with gas or other fuels is eliminated.

By means of pyrometer and rheostat the temperature may be controlled at all times, which makes these furnaces ideal for any use to which they may be put. All our furnaces are so efficiently insulated as to reduce the heat loss through case to a minimum.

HUGHES ELECTRIC HEATING COMPANY

Toronto ∴ Ontario

Are You Influenced by the Experience of Successful Men ?

The basic, fundamental principles deep down at the roots of success are always the same.

And that is why the methods of those who score success are worthy of the closest attention.

It pays to study them. In this way comes new light, perhaps a new grip on one's own problems. Often it is discovered that just one factor hitherto overlooked is making the difference between mediocrity and success.

The "unnoticed factor" may be any one of a half-a-dozen possibilities. But—most frequently—it can be found in an antiquated time-keeping system, leading to lack of discipline, complaints and pay-roll leaks.

There is only one way of dealing satisfactorily with this—the International way.

Scientific management everywhere is acknowledged to include the use of a Time Recording equipment. The most up-to-date industrial concerns all over the world have installed the most modern time recording equipments known.

Further, careful observation shows that these same successful firms are awake to the great money-saving advantages of a system that will give a ***printed*** record of the actual labor cost on each job.

Amongst the well-known users of well-known International Time Recording Systems you find: Massey-Harris Co., Canadian Car & Foundry Co., T. Eaton Co., Dominion Government, Russell Motor Co., Ford Motor Co., Dominion Canners, Imperial Oil Co., etc., etc., and every Railroad on the Continent.

There may be many ways of finding out the most profitable methods and appliances for closely checking that precious commodity known as "working time." But, we believe your problem should be presented to people who have made a life study of time and cost recording methods and their thousand and one variations to suit every kind of business: ***that means us.***

If a member of your family is sick, you do not tell the Doctor what to do—you ask him what to do—again, ***that means us.***

We will gladly keep any appointment you wish to make or will send our literature on request.

INTERNATIONAL BUSINESS MACHINES CO., LIMITED

(Time Recorder Division)

FRANK E. MUTTON,
Vice-Pres. and Gen. Mgr.

Factory and Head Office, Toronto
Also at Montreal, Winnipeg, Vancouver

We also make Dayton Computing Scales and Hollerith Electric Tabulators

The Relation of International Time Recorders to the War

The labor time spent in the making of the millions of shells turned out in Canada—in plants spread from the Pacific to the Atlantic—has been recorded on International Time Recorders.

Get this, the piles of shells—the ship loads of shells—that have gone over the water, over the top, and into the German lines had their birth time registered on an International.

The ships being built in Canada — from the shores of British Columbia to the yards of the Sydneys—is being shaped to the tune of the bell on the International Time Recorder.

The ore that is being produced—the coal that is being mined, is coming forth under the measuring hand of the International.

In the gun factories, the khaki and woollen mills, the shoe factories, the equipment shops—everywhere that product is being rushed out to win the war, the International stands sentinel over the working time being paid for.

These vast organizations are headed by men who know the surest way of checking the enormous amount of labor time being purchased. They also appreciate the fact that the time records must be absolutely correct, and satisfactory to the employee—and they are, because he makes them himself on the International.

Why this universal use of the International? No other System stands up so well under the strain, or can be adapted to so many different kinds of businesses and conditions, or has the Service back of it that we give.

We make Time Recorders and Cost Recorders to suit any business — even yours! We make Master Clocks, Secondary Clocks, Time Stamps, Whistle Blowing and Program Devices, etc. Tell us how many employees you have and the time-keeping system you now employ, and we will make a suggestion that may save you a year's dividend, every year.

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WHY should *you* transfer your papers and records at the end of the year?

In the first place, to relieve your congested files of the year's accumulation of papers. For they *do* become congested, and your filing clerk (or whoever handles the work) doesn't like the patience-trying job of hunting up papers in an over-filled and unwieldy file. Ask her if she's ever experienced it, and what it's like.

And another good reason why you should transfer at a stated time—at the end of the year preferably, is to preserve order in the files—to keep your papers and records of a certain period in a certain place so you can put your hands on the paper you want *just when you want it.*

And here's the book—How to Transfer Papers and Records—which tells in simple, direct language just how you can do this in the easiest and best way.

It's a text-book. With the aid of graphic illustrations and understandable charts it explains the different ways of transferring various kinds of papers and records in every kind of business.

Every Office Manager, every man and woman in charge of a filing department should have a copy. Executives and other department heads should also see that filing clerks, and stenographers in charge of filing, are provided with a copy.

A post-card request will bring it to you at once. Or merely write your name and address on the margin of this ad., tear it out and a copy will go to you in the next mail. This, of course, doesn't put you under any obligation in the least.

THE OFFICE SPECIALTY MFG. CO., LIMITED
Home Office NEWMARKET Canada

Filing Equipment Stores at:

Toronto Montreal Ottawa Halifax Hamilton Winnipeg Regina Edmonton Calgary Vancouver

OFFICE SPECIALTY
FILING SYSTEMS

950

OFFICE AND FINANCE

Inflation and War Will End Together

According to the National City Bank of New York, Industrial Conditions will Govern Prices after the Peace Treaty has been Signed and in its Judgment the War will be Followed by the Establishment of a Feeling of General Confidence which will Lead to One of the Greatest Periods of Construction and Expansion the Country has ever Known

(From the "Manufacturers' News")

THE effects of inflation have been visible for some time in wages and the prices of commodities, but not in the prices of securities or of real estate. This fact is the subject of much inquiry and comment. If inflation is a factor of general import, as it is supposed to be, affecting the purchasing power of money, why doesn't it show in the prices of bonds and stocks and of real estate? What is modifying or retarding its influence in these quarters, and will its effects appear in these prices later?

As the first step toward any discussion of inflation it is necessary to have an understanding of the term. Some persons apply it only to an undue expansion of paper currency, but an expansion of bank loans and deposits has the same effect, since checks are now the common medium of payments. Others in referring to inflation have in mind a general state of abnormally high prices incidental to great industrial activity, whatever the primary cause may have been. Many people argue that the inflation of credits at this time is wholly the result of the war demands, but they take no account of the part played by an increased supply of credit or money in facilitating the demands. In time of peace a country's industries are occupied in supplying its consumptive wants and in construction work to enlarge its powers of production. If, when a country goes to war, it would curtail these accustomed demands enough to offset the new war demands, there would be no rise of prices. But people do not curtail their accustomed demands to any such extent. They go on trying to buy and consume as usual, and since there is not labor enough to do everything, employers raise wages to get labor away from each other, and all prices and costs rise. More credit is required to handle all business under these conditions, but whatever amount of credit is supplied is quickly absorbed, because the bidding for labor and materials continues. In short, each new supply of credit finances a further rise of prices, because costs and prices follow each other around a circle.

Credits at the End of the War

Will this state of inflation end with a collapse of credit after the war? It is safe to say that the credits which have been created for war purposes in this country will be generally liquidated at the end of the war without losses, because they rest at last upon the credit of the government. When the government purchases fall off and its contracts are liquidated, there will be a general liquidation of private indebtedness related to war work, and war work is now the chief factor in industry.

There has been no considerable expansion of credit outside of the war industries. Building operations and new construction of all kinds are at low ebb, except as related to the war industries; real estate is inactive, loans for the purchase of stocks and securities are lower than usual, and the prices of stocks, bonds and real estate are below rather than above the normal level.

These are not the conditions under which panics occur from an over-extension and collapse of credit. It is evident, therefore, that although an abnormal expansion exists at this time the situation is different from that of a boom period, when credit is over-extended upon the basis of more or less speculative private enterprises, about which confidence may be eventually weakened. The statements of corporations generally show that their financial condition has improved in the last three years. They have made only moderate distributions from earnings, have reduced their bonded indebtedness, and although current indebtedness is large, that should be covered by the orders in hand.

Less Uncertainty About Credits

A tight rein is being held upon every tendency to use credit outside of essential purposes, and there is little temptation or opportunity to use it along venturesome lines. As a result there is less uncertainty about the credits of the country than in ordinary times, and there is no danger of anything like a general breakdown or panic while the present situation exists.

The danger of a credit collapse will come, not in the liquidation of the credits now outstanding, or of succeeding credits based upon war business, which practically have the credit of the government behind them, but at the end of the boom period, if there should be one following the war, when credits will have nothing behind them but private enterprises and promises, and the whole situation is based upon an inflated and uncertain state of values.

We may expect that after the war there will be a waiting demand for many kinds of goods and equipment so urgent that for a time price will be secondary consideration. The whole world is doing without things that it would gladly buy, wearing out equipment and falling behind its wants. It is falling behind in house-building, for example, in road-making, in railway extensions and in the development and improvement of public utilities. Automobile construction has nearly ceased, and the cars in use will be nearly worn out. Clothing will be worn out the world over, and stocks of cotton will be low, therefore, there will be a good market for cotton and our cotton states should be prosperous. Not only is there the rebuilding and rehabilitation of the war-devastated districts to be done, but the development of the backward countries looms up with more definite and immediate promise than ever before. The world is not going to seem so large, or its divisions so separate and distinct from each other as in the past. Foreign countries will not appear so remote and difficult of access to Americans. Undeveloped resources which will contribute to the comfort and welfare of mankind will not be neglected anywhere if stable government and protection to investments can be had. The stir of the war will be in the

BANK OF MONTREAL

Established 100 Years (1817-1917)

Capital Paid Up - - $16,000,000
Rest - - - $16,000,000
Undivided Profits, $1,784,979
Total Assets - $426,322,096

SAFETY DEPOSIT BOXES

For the safe-keeping of Victory Bonds, securities and other valuable papers SAFETY DEPOSIT BOXES are conveniently located at the YONGE AND QUEEN STREETS BRANCH.

Branches and Agencies { Throughout Canada and Newfoundland
Also at London, England
New York, Chicago and Spokane in the United States and Mexico City

A GENERAL BANKING BUSINESS TRANSACTED

ESTABLISHED 1875

IMPERIAL BANK OF CANADA

CAPITAL PAID UP $7,000,000 RESERVE FUND $7,000,000

PELEG HOWLAND, President E. HAY, General Manager

The Bank offers a service of the highest order to Canadian manufacturers because of its 126 Branches located in important industrial and agricultural centres throughout Canada.

COLLECTIONS made at all points in Canada and in foreign centres.

DRAFTS—Money Orders and Letters of Credit issued, available throughout the world.

EXCHANGE—Domestic and Foreign Exchange bought and sold.

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blood of all nations and the impulse to do things will be manifest. These are the conditions favorable to a period of enterprise and activity, and which will tend to sustain prices or moderate their decline.

Price Declines Inevitable

Nevertheless, it is inevitable that prices will be upon a declining scale and this will be the factor of uncertainty and danger in the situation. Falling prices, shrinking values in inventories, stocks of goods and capital investments, have a depressing influence. It is comparatively easy to make money when prices are rising; the most venturesome may be the most successful then. Errors of judgment are made good by something outside the management. Farmers of even indifferent skill, who could make but a poor showing of profits from their farming operations, have become well-off from the rise of land values. The situation is very different with prices on a declining scale, for then not only is there no margin furnished gratuitously by an unearned difference between buying and selling prices, but a portion of the normal earnings is lost, and as net earnings decline, capital values shrink, credit is unfavorably affected, and indebtedness becomes relatively heavier and more burdensome. Therefore, it is in order to give warning against incurring indebtedness which will reach over into the period after the war, when prices and earnings will be lower than now.

Prices must decline, for one reason, because the conditions which occasioned the rise will be reversed. The millions of men withdrawn from industry will be returned to it, and the millions of women who have entered industry will not all leave it. Although it is true that there is a vast amount of work waiting to be done, private employers will count the cost of capital investments more carefully than the government counts the cost of war supplies, and the demand for labor even if sufficient to absorb the great supply, will not be so urgent as in wartime. It is probable that the governments will take action during the transition period to provide employment, but constructive work will enlarge the facilities of production and increase the flow of products, and thus contribute eventually to the fall of prices.

Inventive Genius Will Help

The inventive genius and energies that have been active during the war in other channels will be applied to the task of supplying the common wants of the population. Many lessons both in production and economy have been learned which will be of lasting value. Science is constantly making discoveries which cheapen industrial processes, and science is being applied to industry more systematically than ever before. The decline of prices which results from such economies is not harmful to those able to take advantage of it but it is likely to be serious to those who do not keep up with the movement.

The basic industry, agriculture, whose products are the chief factor in living conditions and in the wage question, and therefore, closely related to costs in all industries, is susceptible of great improvement in methods, and some are under way. Plans are being laid in several of the countries at war for placing ex-soldiers upon land, and in the United States the secretary of the interior is developing a plan to that end. With the exception, possibly, of live stock, it is probable that farm products will soon find their way back to former levels, and if so this will have a powerful influence upon other prices. It is safe to say that the workers in agriculture will not be satisfied to exchange products with workers in other industries on a basis less advantageous to themselves than in the past.

Canadian Pneumatic Tool Co.

Subsidiary of Big United States Company Now Placed on a Dividend Basis

At a meeting of the directors of the Canadian Pneumatic Tool Co., Ltd., held in New York recently, the stock was placed on a 4 per cent. dividend basis, with the declaration of 1 per cent. for the quarter. The company is a subsidiary of the Chicago Pneumatic Tool Co. In connection with the Canadian subsidiary it is announced that the directors intend in the near future, to erect and equip a large manufacturing plant in Montreal. H. A. Jackson, formerly with the Bethlehem Steel Company, is president of both companies, and George J. Sheppard, vice-president and manager of the Canadian company.

Loan Means Industrial Activity

Over Billion Dollars in Contracts Through the Imperial Munitions Board—Large Airplane Industry Set Up in Toronto

If any good can possibly come out of such a horrible, devastating thing as the present war it is the spur of activity in industrial pursuits that has come to the people of Canada. The war has enabled our people to find themselves, to realize that we possess the possibilities of prodigious development; and when we again turn to peaceful vocations we will undoubtedly take advantage of war-developed avenues of trade and sources of wealth which had been dormant or entirely dead up to the past three or four years.

Canada has expanded her trade many fold during the years of the war. Her exports of manufactures have grown to almost incredible proportions. For instance, taking the figures of the year 1913 for purposes of comparison: In that year we exported of manufactured products $43,692,708. But for the year ending March 31, 1918, the value of these exports was $636,000,000. Of course a large proportion of these exports were purely war material, but in addition to that we have opened up new markets for many of our exportable products which will be required by our customers abroad after the war if we have the good sense to develop those markets.

It is worth while looking into the figures of the operations of the Imperial Munitions Board, which was entrusted with the task of buying supplies for the Imperial Government. These included wheat, cheese, butter, condensed milk and many other food commodities. Because the Dominion Government has been able to make advances to the Board, out of previous Loan issues, it has made contracts in Canada to the value of $1,200,000,000. The Government is making advances at the present time to the extent of $25,000,000 a month, and the Board has contracts for another $500,000,000 of war materials which will go to Canada if the Government is able to make the necessary financial arrangements.

Here are some facts in connection with the previous operations of the Board in Canada: It has placed orders with 1,000 manufacturers, and between 250,000 and 300,000 persons have been employed on these orders, in addition to 50,000 employed in handling supplies. Over 60 million shells have been produced, 60 million copper bands, 45 million cartridge cases, 30 million fuses, 65 million pounds of powder, 50 million pounds of high explosives. Over 1,800,000 tons of steel have been used in the production of war material and fully 1,450,000 tons have been produced in Canada.

The Board has built, equipped and operated seven national manufacturing plants on which $15,000,000 has been spent. It has built up a great airplane industry, and an airplane engine factory, upon which millions are being spent. The lumbering industry of British Columbia has been developed

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INCORPORATED 1869

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Capital Paid Up	14,000,000
Reserve and Undivided Profits	15,000,000
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to an enormous extent, and the Board gave contracts for 90 ships costing $66,000,000. The Board has put many of our exportable food products on such a footing that the benefit will last when the war has been forgotten. There has been expansion in so many lines of endeavor that the story seems incredible. It has all come because Sir Thomas White has been able through the Victory Loan, to take care financially of every need. The people of Canada must not forget this.

St. Maurice Paper

Earnings for Current Year Stated to be Running in Keeping with 1917

A semi-official report states that the earnings of the St. Maurice Paper Company for 1918 will be in keeping with those of 1917, when the company earned a net profit of $1,060,853, and a surplus of $595,150 after depreciation, bond interest, etc., or 11.9 per cent. on the stock. This, with previous surplus, gave a total of $902,000.

The plant of the company, located at Three Rivers, has an output of 100 tons of newsprint, 55 tons of sulphite pulp and 50 tons of Kraft paper. The largest stock interest in the company is held by the Union Bag and Paper Co., which transferred its timber limits and pulp mill to the new company for common stock. Following that, an issue of $1,500,000 6 per cent. bonds was made to erect the paper mills and provide the company with working capital. The value of the original property and subsequent additions is placed at approximately $6,000,000, in addition to which it is stated that current assets amount to $2,000,000, against which there are $1,500,000 bonds and $5,000,000 common stock outstanding.

Cockshutt Plow Co.

Considerable Increase in Net Profits Realized during Last Company Year

For the fiscal year ended June 30, 1918, the Cockshutt Plow Company, Limited of Brantford, earned net profits of $533,214, comparing with $405,710 the previous year. The previous balance being $491,786, there was a total for distribution of $1,045,001, of this amount, $258,600 was paid on preferred dividend arrears; $200,000 was transferred to contingent reserve; $500,000 was credited to capital reserve and $86,401 was carried forward. Col. H. Cockshutt, the president, reports a larger volume of business, which might have been greater, had it not been for the labor problem.

St. Lawrence Flour Mills

Annual Statement was the Best in the History of the Company

After deducting excess profits tax for 1917, the St. Lawrence Flour Mills Co. showed profits for the year ended August 31, 1918, of $268,737, as compared with profits of $171,071 the previous year. Adding in the balance at profit and loss at the end of the previous year, there was available for distribution the sum of $406,894. Of this amount, interest on bonds took $13,489; dividend on preferred stock shares, $40,250; dividend on common, $102,000, leaving the amount to be carried forward into profit and loss of $251,154, as compared with $138,156, at the end of the previous year. The company has bought in a considerable amount of its bonds and out of a total issue of $300,000, there are now outstanding only $165,500.

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Lake of the Woods Milling Co.

Over Quarter of a Million Increase in Profits during Company's Last Fiscal Year

Net profits of the Lake of the Woods Milling Co. for the year ended August 31, 1918, were $857,914, an increase of $288,000. After distributing 12 per cent. in dividends; writing off $100,000 and setting aside $200,000 to bond redemption account, the net surplus in profit and loss account at the end of the year was $978,787, against $831,883 a year ago. The percentage earned on the common stock was 33.3 per cent., comparing with 19.5 per cent. in 1917 and 15.3 per cent. in 1916.

Russell Motor Car

Earnings for Last Fiscal Year Fell Very Little Short of Earnings for Previous Year

For the year ended July 31, 1918, net profits of the Russell Motor Car Co. were $628,581, after allowing for taxes, depreciation, etc. This was about $15,000 less than the previous year. After paying preferred and common dividends at the rate of 7 per cent., a balance of $488,581 was carried forward, bringing the balance at profit and loss up to $536,161.

The balance sheet shows in current assets, including investments in other companies, $4,749,592, against current liabilities of $1,416,600, or a working capital surplus of $3,332,992. Last year's figures were assets, $4,473,265, liabilities, $2,021,092, or a surplus of $2,452,173.

Shipbuilding and the Loan

Eighty Ships of Three Hundred and Eighteen Thousand Tons to be Completed this Year

One of the industries directly affected by the success of the Victory Loan is that of shipbuilding. It is important to remember what Sir Thomas White, Minister of Finance, has said that, "Every shipbuilding plant in Canada is working to-day at capacity—a fortunate situation which would not have been possible had it not been for the success of our last Victory Loan."

Let us look into the figures and see what the Finance Minister means. When the war broke out our shipbuilding industry was practically dormant. But there arose an urgent need for the immediate construction of hundreds of ships to make up for the losses resulting from the destruction of tonnage by enemy action. The Imperial Munitions Board was formed and it awarded contracts to Canadian ship yards for the construction of 44 steel and 46 wooden ships, aggregating 340,000 tons and of the value of $66,000,000. The Dominion Government made advances from time to time to enable the ship yards to greatly increase their capacity, and it was because the Finance Minister had funds at his disposal, out of the proceeds of previous loan issues, that he was able to secure this huge business for this country. Of the ships under contract 318,400 tons are to be completed this year, an amount equal to the entire output of Canadian yards from 1902 down to the outbreak of the war, and one-fourth of the mercantile shipping turned out in all the yards of the United Kingdom during 1917.

Then, in addition to these ships the Department of Naval Service secured contracts for submarines for Great Britain and Italy; for 550 motor submarine chasers for Britain and 26 for France, and for a number of steel lighters, trawlers and drifters for Britain.

So much for that. The Dominion Government purposes that the shipbuilding industry thus built up shall not decline

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when the war is over. It has provided for the expenditure of $50,000,000 and contracts have already been awarded for 24 ships, with a tonnage of nearly 135,000 tons, and valued at $26,500,000. It has also authorized the construction of six other large ships, with a tonnage of 29,000 tons and the value of $15,000,000, but the contracts have not yet been signed. These ships will be built in the following yards: Eight at Montreal, four at Collingwood, two at Vancouver, four at Three Rivers, two at Levis, two at Port Arthur and two at Halifax. Work on these ships has been held back on account of the inability of the builders to secure steel adequate for their needs from the United States; and so it has been necessary to erect in Canada a special mill for the rolling of ship plates. By an arrangement with the Dominion Iron and Steel Co., the Government will purchase 250,000 tons of steel plates, which will be sufficient for vessels having a tonnage of between 750,000 and 800,000 tons.

This all means much to Canadian industry. There are at present 25,000 men engaged in the shipbuilding industry in Canada, in five provinces out of the nine. These artisans and laborers make big money which is distributed among the whole people.

The Victory Loan has in the past helped to put the shipbuilding industry on its feet. It will keep it there with your aid.

Ogilvie Flour Mills

Net Profits for Company's Year Amounted to Nearly Two Millions

Net profits of the Ogilvie Flour Mills Company for the past fiscal year amount to $1,955,414, as compared with $1,358,000 last year. For the year just closed the Ogilvie Company declared dividends and bonuses amounting to 27 per cent., as compared with 25 per cent. paid for the previous year. In other words, in two years of war this company has paid back to its shareholders over one-half of their total investment. If this is kept up shareholders will get back more than their total investment in less than four years. It is true that the milling companies were allowed a profit of 25c. a barrel over their milling costs, but with such a concern as the Ogilvie Company, the immense turnover enables them to make a very large sum of money.

The year's showing of $1,955,414 net after taxes, interest, etc., was by a good margin the best in the history of the company. In the previous banner year of 1915, net profits were $1,519,594, a total now exceeded by $435,820, or well on to a 30 per cent. gain.

Surplus after all charges and dividends for the year amounted to $1,140,414, against $593,847 the previous year, $334,270 two years ago and $1,179,594 three years ago.

Hamilton Harbor Improvements

At a recent meeting of the Hamilton Harbor Board it was decided to engage J. J. MacKay to make a survey of the land reclaimed on the bay shore between Ferguson Avenue and Wellington Street revetment wall, with a view to laying out factory sites. The secretary reported that J. M. Wilson, Government engineer, is working out the development scheme for the entire harbor, so that the entire shore line will be improved according to a definite plan. The plans will call for extensive improvements to take place after the war, when it is expected the canal at the beach will be widened.

The Term "Australasia"

Auckland Chamber of Commerce Takes Exception to Its Use by Certain American Firms

In a bulletin recently issued by the Auckland, N.Z., Chamber of Commerce, attention is directed to a misconception in connection with the use of the term "Australasia." The bulletin states: "The attention of this chamber has been directed to the unsatisfactory position resulting from the indiscriminate use of the term "Australasia" in connection with business matters. It is stated that oversea exporting houses, in placing agencies with Australian firms, frequently use the term 'Australasia' when only the Commonwealth of Australia is intended. Individual cases were quoted where, on New Zealand firms applying for agencies, it was found that their appointment was barred through 'Australasia' being used in the agreement with some Australian firm, although the latter had no connection whatever with New Zealand and no intention of working it. In some instances the New Zealand appointment had actually been made before the hitch resulting from the agreement was discovered. You will recognize that this is detrimental both to New Zealand business and to the oversea exporter, who in many cases is practically blocked from obtaining a connection in the Dominion. The chamber is of opinion that you may think the matter of sufficient importance to bring it to the notice of American manufacturers, pointing out that while the term 'Australasia' is understood to cover Australia and New Zealand, the two countries are quite distinct, and it is not in the interests of either that the control of agencies covering both territories should be placed with a firm doing business only in one."

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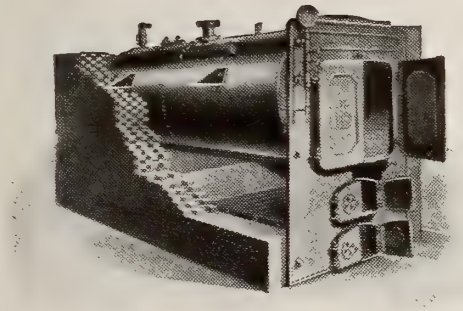
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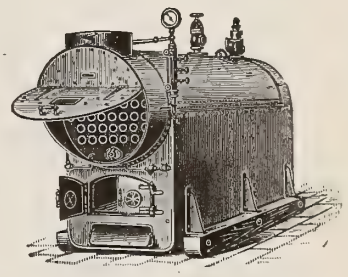
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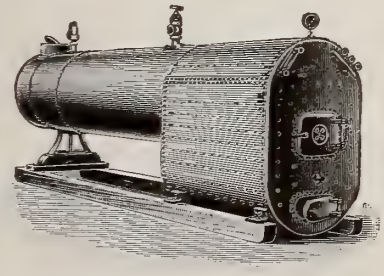
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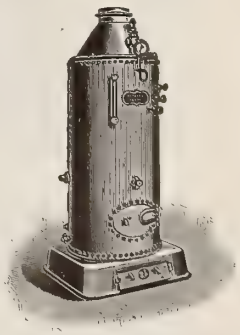
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TRAINING THE BOY FOR INDUSTRY

An analysis of the traits and qualities which industry requires of its workers—How industrial experience contributes to the setting of moral standards for the youth—Cultivation of self-reliance and spirit of initiative, etc.

By LOUIS L. PARK
Superintendent of Welfare, American Locomotive Co.

(From "The Vocational Summary")

To a large percentage of the boys who each year reach legal working age the call to enter industry comes with a strong appeal, the appeal of a great new experience. It offers a change from the routine of school life and a freedom from study; it offers the charm of an income and of more spending money, a feeling of independence and an improved standing among one's neighbors. Others have succeeded, have secured good jobs and earn good wages; why may not they? It is the call to a big adventure in which are wrapped the possibilities of the future. Were we to ask these boys what is the most important thing to be attained through industry it is likely that from most of them we would receive the answer "good wages." * * * But industry holds more for these boys than a chance for financial gain; it gives to many the opportuntiy for that development of mind and body which leads to broader interest and to increased ability, and their activity in matters of social interest is partly the result of success as industrial workers. The larger relationships of industrial life present also the problems of moral development, either for better or for worse, for with the associations which come with work in mill or shop come moral influences which help for the strengthening of character or which tend to lower the standards. * * * If the boy who is to enter industry is to be prepared for life, much will depend, then, upon how he is prepared for industry and the extent to which our schools prepare the boy for industry will in many cases mark the extent of their influence in shaping him for life in a democracy.

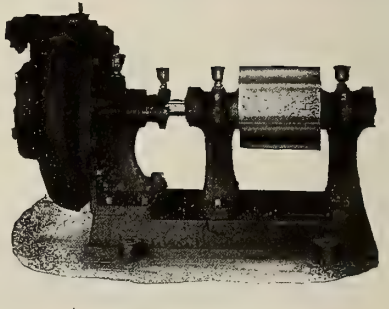
No Simple Rules Applicable

The vocational training of boys for industry can be considered here in a very general way only. So varied are the demands of industry, so many the degrees of opportunity offered and so different the provisions made for training after employment, that no simple rule can be suggested. The needs of each locality will naturally govern to some extent the vocational training advisable, and the preparations which the employer makes will modify those needed in the school for the training of the future worker. Still further, there is the problem of adjusting the individual to his proper task, of finding the work which will afford development and provide income to the satisfaction of the worker. These vari-

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ables must be met by a programme sufficiently flexible to ensure justice to the greatest possible number.

We may well keep in view the fact that most industrial workers eventually specialize in their work, no matter how elaborate their training. The young man finds that he does his best work and makes the best wages in some one process, and to this he is apt to hold, while only a few engage in work involving broad training and demanding general skill. The instruction given to employees after entering industry is, therefore, part of a programme of adjustment which is necessary to enable the worker to find his ultimate job.

Aim at Mental Development

All specialization is most intelligent and appropriate if it has been preceded by a programme of training in different operations. The apprenticeships and other training courses offered by employers have this as one of their objectives, not only to develop men for general utility, but to give the mental development which produces efficiency in the worker. Several things are here accomplished: First. The worker's curiosity as to certain kinds of work is satisfied in the process of rotation about the shop and he is content afterward to settle down to one of them; if confined to one task from the start he is apt to think some other is more attractive and keep changing later to less advantage. Second. He is better able to judge the work to which he is adapted, because of his all-around experience. Third. He is mentally broader and more ingenious and self-reliant from his contact with many problems and their solution and his mastery of a number of processes. Fourth. He has less fear of specialization, since he knows his ability to do other things, if necessary, and there is absent a feeling of narrowness due to the confining character of his task. If variety of opportunity is not provided it will, in many cases, be obtained by voluntary drifting, and it may well be given by plan at first than by accident later.

Whatever the school may do in vocational guidance should help to decrease, though not eliminate, this post-employment fitting of boys to jobs and jobs to boys. The thing he likes best may enventually be set aside and another more serious task may claim his life's greatest effort, but with the larger number the guidance of the school will prove to be safe and, in many cases, final.

When a modern training course is offered by an industrial concern, the matter of preliminary training is simpler. * * * When proper training in industry is not provided, the vocational opportunity of the schools is apparent. To a greater or less extent they may prepare for specific positions or trades and give the student the breadth of experience which should always precede specialization. They may at least teach the essential operations of certain predominant trades, or what we may call the "alphabet" of the trades, from which are derived the many combinations which make up a variety of industrial occupations. With these fundamentals mastered it will be easier for the student to adapt himself to a specific situation than if he has attempted to specialize in school and must later take up other work.

Mental Traits That Help

But whatever may be the extent of trade or vocational training before the boy enters the shop or mill, there are certain mental traits which, if he has acquired, will help toward successful progress in industry. He may have gone through the school programme and done all the stunts required and be able to show some samples of his productive ability, but yet miss the most desirable of things possible of

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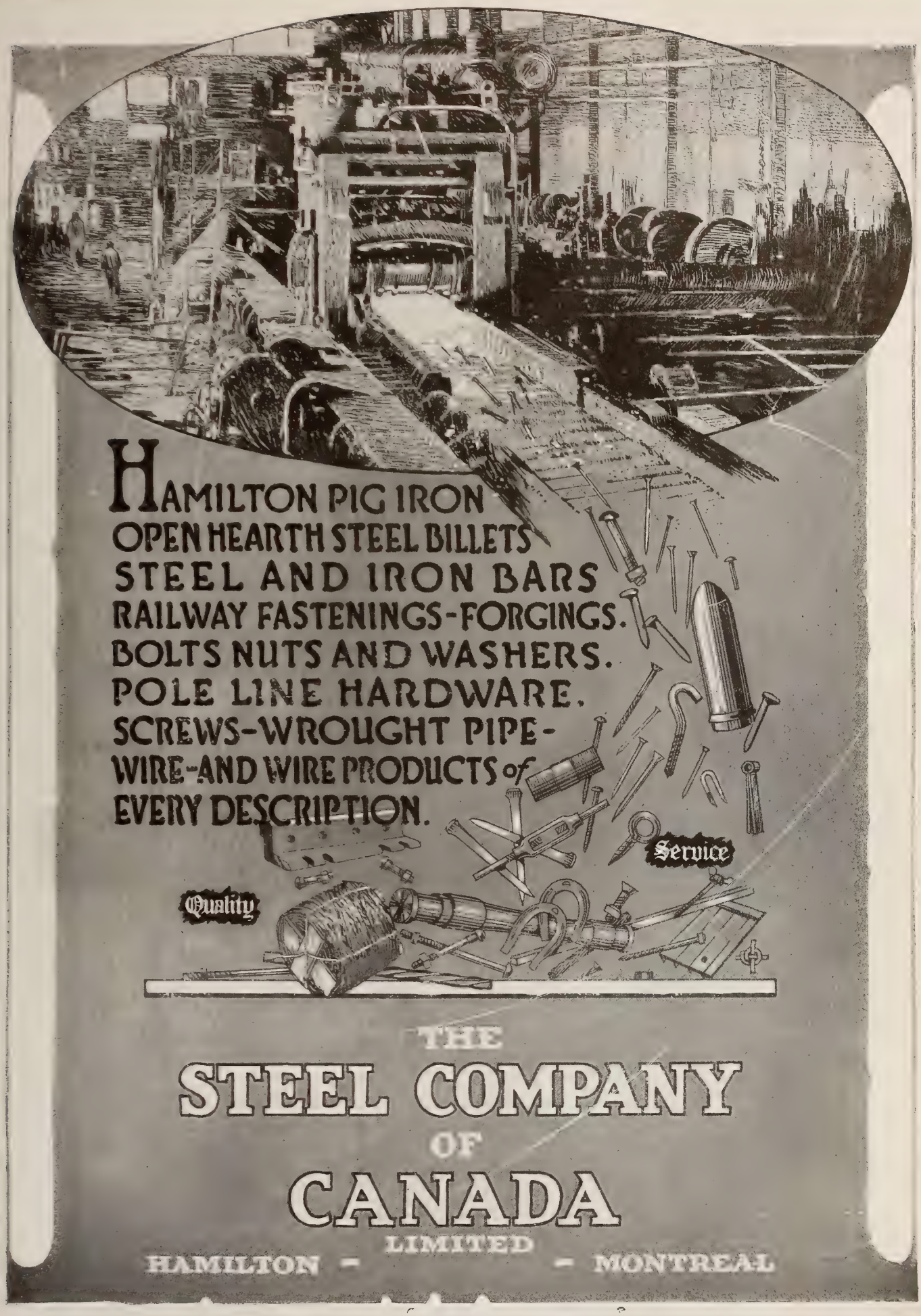
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accomplishment. The state of mind is, after all, one of the great things desired—the attitude of the boy toward his future work. His conception of the scope of his school training, his ability to adjust himself to his work, his reaction under discipline, his sense of the relation of quality and quantity, and his attitude toward compensation will have much to do with his progress toward efficiency. The extent to which the school may help in shaping his attitude toward these is problematical, but whatever it may be able to accomplish in this direction will be desirable. We have known boys to consider their school trade training as sufficient to ensure a substantial income and who have drifted from place to place because it did not soon materialize. We believe that it is unwise for anyone to encourage boys in considering themselves skilled machanics when they have mastered only the elements of a trade, yet there is a tendency, even though an unconscious one, for this to occur. A realization that his training has been a preparatory one will usually help the boy to better appreciate the requirements of his real job.

Must Produce Results

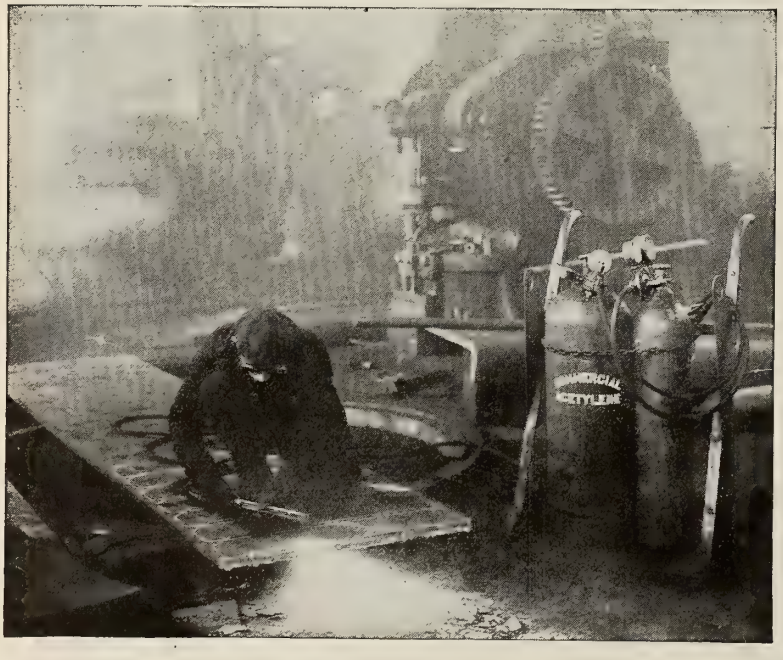
"Production" is the big word in most industrial establishments. However promising a boy might be, the world and his employer will not long be satisfied with promises; he must produce the goods. The shop was called into being to produce needed commodities and it must fulfil its mission efficiently or die. It is not surprising that upon this word has pivoted the whole of business organization, and by this word must be gauged the extent to which each individual fits into the scheme of industrial enterprise. Whatever else the boy may be or do or may not do or be he must produce his expected share of the shop's grist. It is "output" or "put out." The proper balance between "quality" and "quantity" is the secret of success in industrial production. A boy may be extremely accurate and painstaking but be exasperatingly slow. Another boy may be "quick as a wink," but lack the care necessary to proper finish. Each of these will find his niche, but his name should not be "legion," for these niches are limited. The great demand is for those who can co-ordinate carefulness and speed and their number must continue to increase. Both traits can be developed in some degree by training. One naturally expects our schools to teach accuracy rather than speed, but if quick thinking can be stimulated in school work it will pave the way for the final development of the future skilled producer.

Money-mad Policy Too Prevalent

The money question is a serious one to many young people at the age of business opportunity, particularly at this time of national crises when big wages are available as never before. Too many are willing to sacrifice their futures for immediate financial gain and leave school and further training for what they may now earn. Courses of training in industry are often passed by for futureless jobs with large incomes attached. Thousands of young men are being ruined to-day by this money-mad policy which has become so prevalent. It is a condition which can be reduced only by the close co-operation of school and parent and employer. It deserves our best thought and effort in a campaign of education which must begin at some point far from the zone of temptation.

We believe that most schools have a direct moral influence which is of the greatest value in steadying the lives of growing youth. Where home and other agencies co-operate with the school in moral training the results are encouraging, but when the school operates alone the task is a trying one. Within the ranks of industry will be found some of the finest

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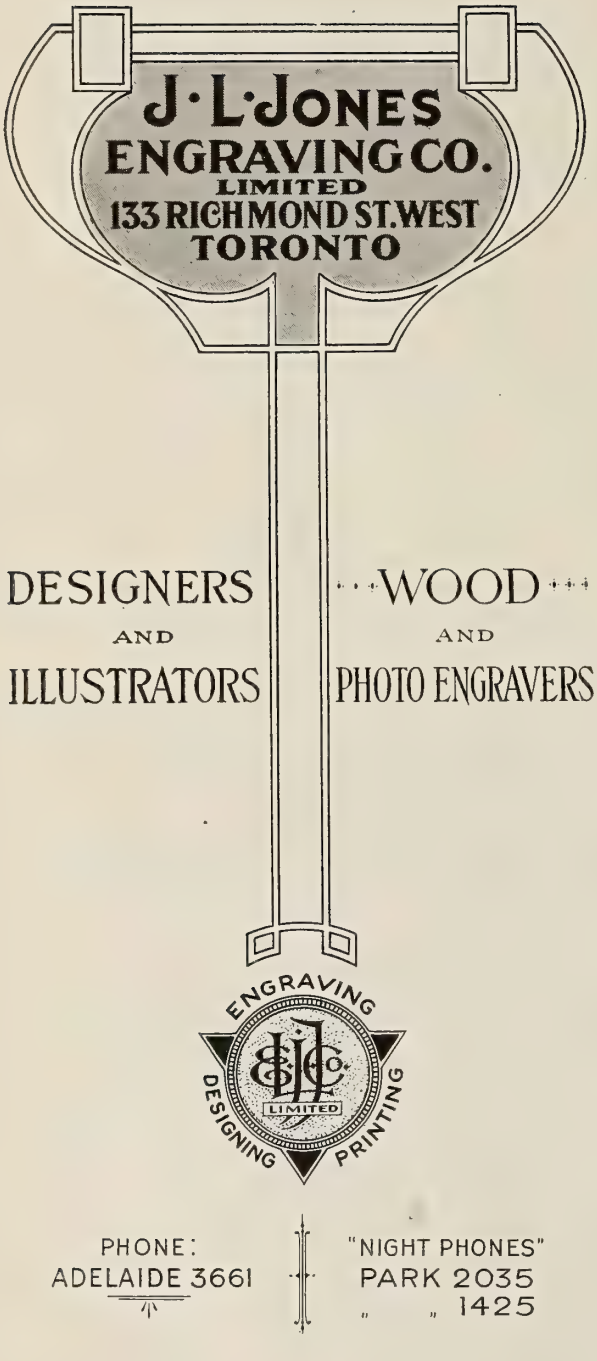
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people the world has produced, men and women of high ideals and excellent influence. But industry as a whole has not as definite a moral calibre as we might wish; its detailed influence may be for good or for evil; its habit-changing and habit-forming power will sometimes be for the worse as well as sometimes for the better.

Since the problem of preparation deals with an endless variety of student abilities and tendencies it is evident that individual instruction in school will count effectively to whatever extent it is permissible, for that preparation alone can be effective which takes into account the needs of the individual student. Thoroughness in a smaller number of subjects will outweigh a more pretentious programme hurried through. It is not so much the extent of his knowledge as it is his ability to apply what he has studied that measures the value of his training.

A REHEARSAL OF DEMOBILIZATION

Not military convenience but social reconstruction is the mainspring of a scheme which has been worked out in England for handling the task of demobilization—Aim in view is that every man can find a job when he wants one

(From the "London Times")

A scheme for the demobilization of the army after the declaration of peace has been prepared by the War Office in conjunction with the Ministry of Labor. It has been rehearsed by small bodies of troops, and closely watched by many competent military observers for flaws of detail.

One of these rehearsals or experimental dispersals took place at a camp not very far from London, and occupied twenty-four hours. In that time a number of men went through the process of being freed from the army and returned to civil life. They remained soldiers; they were but acting a part; but everything was done under the same discipline and with the same attention to particulars as would have obtained if the men had been indeed carrying the laurels and emolument of one form of service into another.

Principles of the Scheme

Before following them through the process of release it may be as well to describe the principles of the scheme. Above everything it recognizes that ours is a citizen army, and that citizens are men with homes. Then it is based on the assumption that men who have sacrificed so much for the sake of their country are entitled to all consideration which can be allowed them consistently with the common good. One such consideration is a holiday at the nation's expense. Fundamentally, it realizes that there would be no kindness to the individual and no advantage to the community in forgetting that the soldier has to earn his living after resting a while from his military labors. Not military convenience, but social reconstruction is the mainspring of the scheme. The Army Council and the Labor Ministry are allies. The result of their co operation should be that every man now under arms will be able to find a job as soon as he wants one; and that the soldier-beggar, who was so familiar a figure to our forefathers in the 18th and 19th centuries, will not be an object of patronage and charity to-day. The need of labor in individual industries will serve to a large extent as a guide to the demobilizing officers in the first instance; but men who have been actually in the field for two or three years will not have to wait long for their discharge and special and early care will be taken

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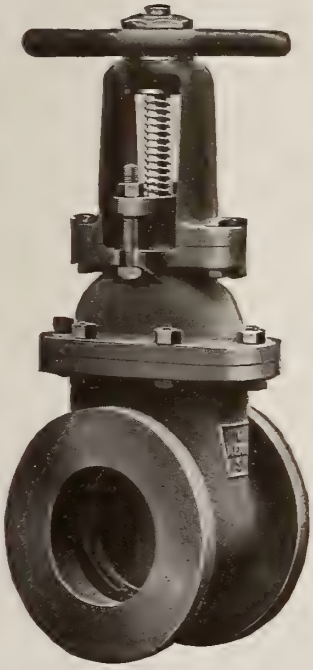
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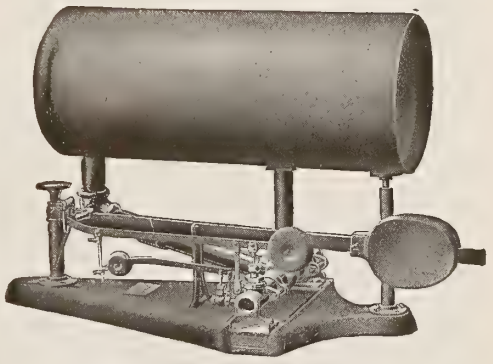
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to get employment for survivors of the old army. But demobilization plans aim at placing every man. It need hardly be pointed out how employers and others can help to this end when the great opportunity of peace arrives.

Dispersal by Locality

Going from principles to features, one finds that the essence of the scheme lies in dispersal by locality instead of by units This sounds technical, but is really quite simple. It means that a draft for dispersal will not be selected from one regiment or battalion, but according to the whereabouts of the men's homes. For example: A Gordon Highlander, who was living before the war or intends to live after the war in Wiltshire, will not be sent to Scotland with a solid body of his comrades; he will be included with other Wiltshire men in a draft taken to Wiltshire for dispersal. Thus he will be saved hours, perhaps days, of travel; and the railways will be relieved from the burden of accommodating him over unnecessary journeys.

Of the men who took part in the rehearsal one-half were supposed to have just arrived from France and one-half from a collecting place in the United Kingdom. All were bound for homes in a certain specified district. If they had come from the train hungry they would have been fed, and if they had been in need of sleep would have been housed. A dispersal station will have these comforts ready, though they will not be always wanted. The men were in full equipment, and had first to rid themselves of this. Having been collected on the arrival parade ground, and having paraded in convenient order, they entered an improvised office or store, where each man received a sandbag. In this he placed his private belongings. At the same time he handed over his equipment, including his rifle and (presuming him to have come from France) his steel helmet and gas mask. If any important article were missing—say, the rifle—the man had to repair to another place to give an explanation. Here the officer in charge of the draft was called in to corroborate or comment on the man's story. A satisfactory explanation ended the matter. Otherwise the soldier was debited on his dispersal certificate with an amount corresponding to the deficiency. Cases of this kind would be relatively few. A man left the equipment shed in his uniform and carrying only his greatcoat and the sandbag containing his private belongings. The intention is that soldiers shall keep their uniforms, but shall return the greatcoats on the conclusion of their furlough. Their uniforms they may wear for twenty-eight days after dispersal, and thereafter on "special" occasions only.

Documents the Man Receives

The "documentation" of the man is a more complicated business, and he must pass through several offices before it is completed. Men and women clerks, however, seemed to enter very earnestly into the rehearsal, and did their work quickly and carefully. All the entries, too, were checked at a separate desk. It will be sufficient here to state the outcome for each soldier. First, he gets an out-of-work insurance policy securing him, in the event of unemployment, a weekly sum, the magnitude of which will be determined later. In return for his dispersal certificate he receives a protection certificate, which he takes away with him for four weeks' furlough. It entitles him to a sum in advance at once, the remainder of his deferred pay and whatever gratuities may be voted by the Government being payable in three equal instalments during the furlough on presentation of the certificate at a post office. A label for the return of his greatcoat at the end of twenty-eight days is also issued to him, and the papers, which include the record of his military service and a railway warrant for his journey,

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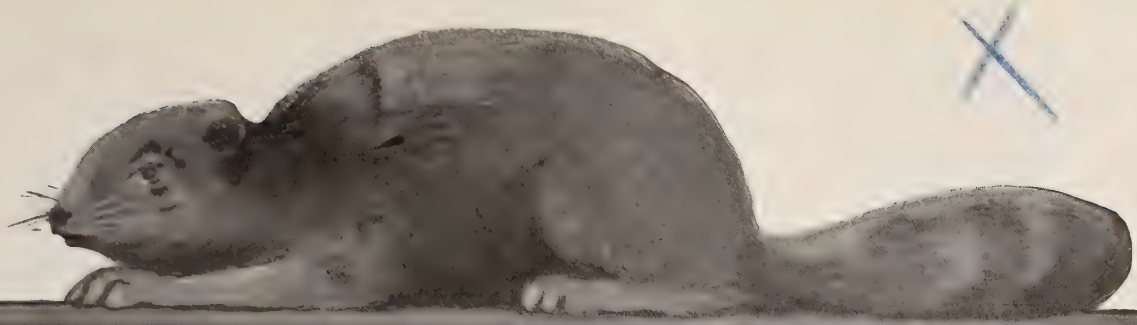
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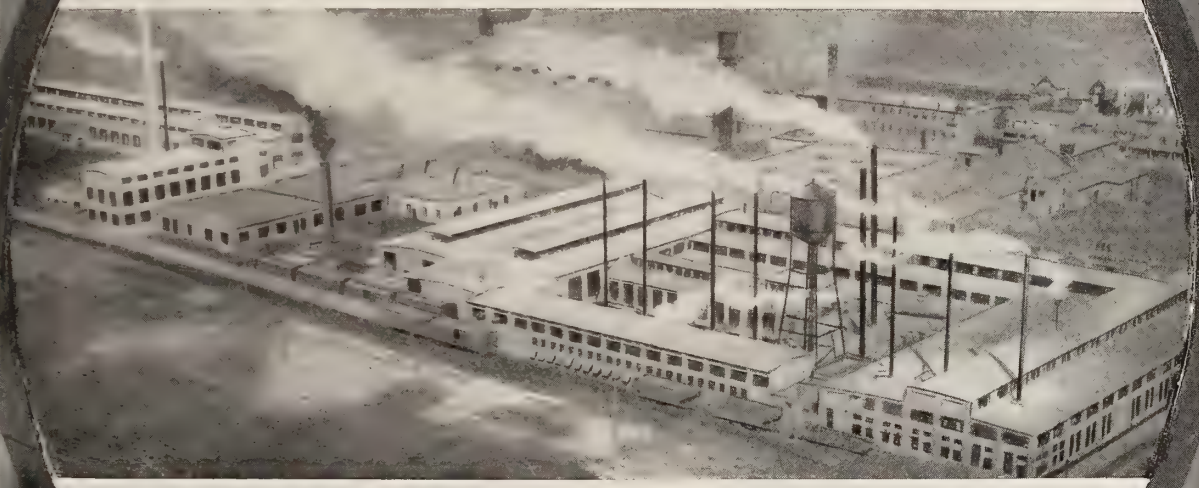
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are put into an envelope, on which is plainly marked the number of his railway group. By means of that number he finds those of his comrades who are "going the same way home;" they are warned of the time of the train's departure, and finally taken to the station and seen off. The man is at last demobilized.

The documents have been simplified as far as can be. Much study has been devoted to reducing them to a minimum. Even so, the number of them will be in the aggregate enormous. It is estimated that demobilization will take forty-five million forms. A system of codes will enable the War Office to keep in touch with progress, and to tell by rapid reference how many men in any category or group have been discharged in a particular area. The number of dispersal centres which the scheme proposes to establish is eighteen. Should men pour in too quickly the number of dispersal units at a centre would be increased. As many as three might be attached to one centre. But here it becomes necessary to warn the ingenious arithmetician against attempting to calculate the time complete demobilization would occupy. The sum may amuse, but will not enlighten him. Factors which are by no means mathematical enter into the problem.

The United States Department of Agriculture announces that the largest experimental plant in the United States for the manufacture of fixed nitrogen from the air, with the exception of the plants in course of construction for the War Department, is now in operation at the Arlington Experiment Farm of the Department of Agriculture, near Washington. At this plant atmospheric nitrogen is combined with hydrogen to form ammonia, which is available for use in the manufacture of either explosives or fertilizer. The Haber process is used in the fixation of the nitrogen.

HOW SHALL WE HOLD POPULATION?

Handicaps which Canada will have to face after the war in competition with the United States—These may lead to depopulation—A solution possible in the opinion of this writer is developing small holdings and irrigation

By NOULAN CAUCHON
(From the "Montreal Standard")

Town planning and housing are slowly but surely forcing public recognition of the fact that they are essentially economic problems, apart from glorified gardening or Government largesse.

Within the limits of its early designation there soon evolved a science and an art—economic and limitless in its relation to the use and development of land—of all land, as the monopoly of life.

In an interview some days ago, anent housing and the provision of good living conditions for workmen, I expressed the view that it was a much more serious matter than many realized, to the manufacturers of Ontario, whose government has come forward with a policy of generously assisting municipalities to meet the housing problem.

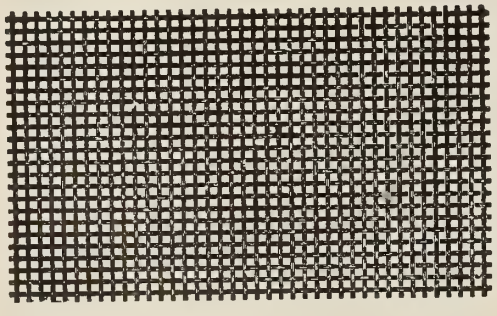
Likewise the need holds relatively, equally, for the Province of Quebec, and no doubt the Federal Government may eventually have to sustain the movement as the National Governments of England and of the United States have found advisable, not from philanthropy, but as of necessity and advantage in economic regeneration of living conditions for workers, a factor of national efficiency.

England has been leading in social legislation for a long time—evidence her 1909 housing and town planning Act and

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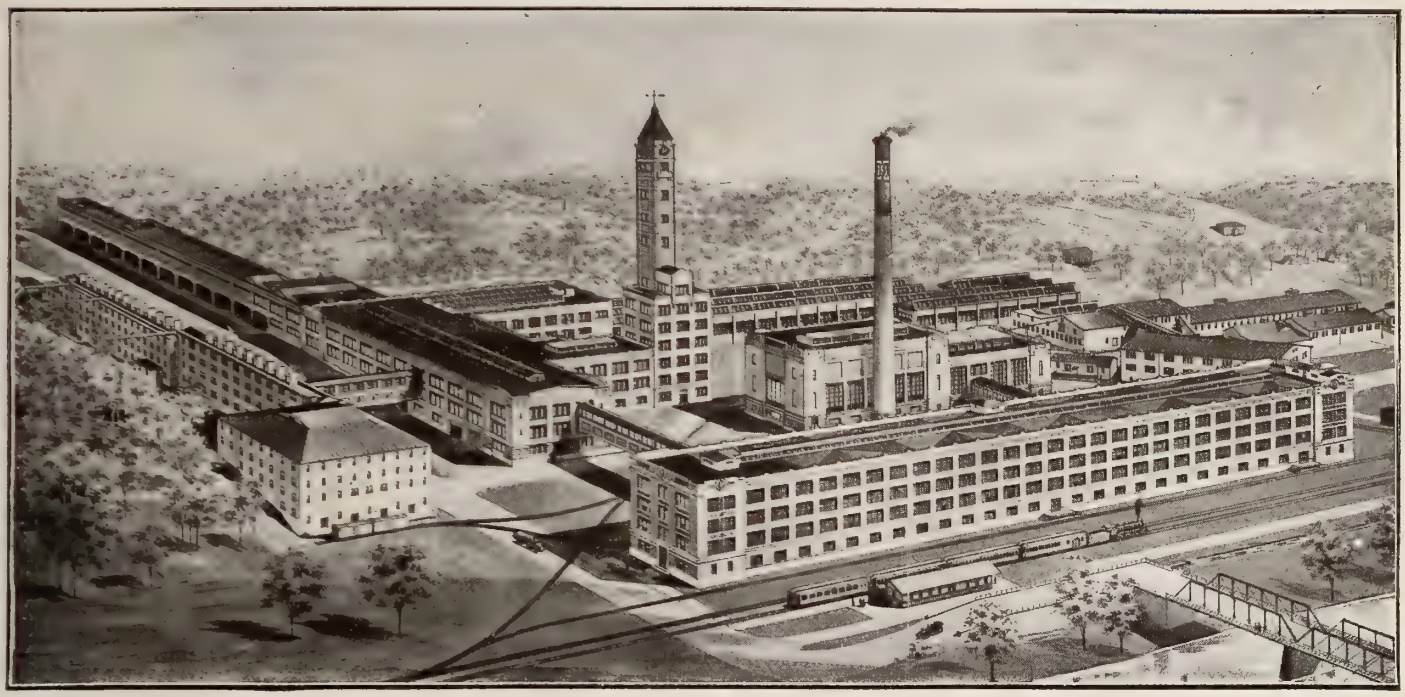
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subsequent amendments, and her budget provisions for carrying this out. What is more, she has implemented her acts and gone ahead and done things.

The United States under the awakening pressure of war exigencies has recently started on the spending of over one hundred million dollars to provide proper housing and amenities for the workers in her war industries as a means of efficiency, modeled on England's lead.

In Canada our living conditions have deteriorated during the war. Money and rents have gone up, private capital has sought shelter or more lucrative ventures. Few workingmen's homes have been built yet at the same time more families have been drawn to industrial centres by war's demands.

Economic Temptation : Exodus

If after the war the United States be with proportionately less debt, lower taxes; milder climate and less cost of heating; cheaper clothing and less need of it; fair wages and good housing and the conversion of her industries provided for with forethought; she will offer economic inducement to immigration—to Exodus from Canada.

It would seem timely to look conditions in the face and not be caught unprepared when war ceases, so that it may be a happy ending, not the beginning of a sadder struggle against debt and dejection and depopulation, as it surely will be if we redeem not our sins of omission in this category.

Bearing in mind the two sides of the medal; that of the United States still further handicaps us by their stupendous shipbuilding output which will leave it—the war over—with a formidable merchant marine to expand their export and to still further react to the stimulation of their industrial enhancement.

The increase of American shipping will handicap us in other ways; for instance, in still greater disparity of the Atlantic load factor against Canadian ports—Montreal being seriously concerned to preserve, and for Canada, its standing.

Such a disparity if not met by vigorous awakening might still further deplete by the lessening of the eastern haul, the already meagre earnings of the railways which the Government has shouldered, railways thus doomed to hardship even under prevailing conditions, by the very reason of their current inability to meet undertakings.

Georgian Bay Canal Report

In reading Mr. Sanford Evans's very lucid and enlightening "Interim Report, statistical examination of certain general conditions of transportation bearing on the economic problem of the proposed Georgian Bay Canal" one may be struck with the enormous bearing which the adverse load factor apparently has on the diversion of Canadian overseas export grain to American channels, because there are more boats sailing with cargo to those ports, thus enabling their taking grain to Europe economically as returned cargo.

Because they have more paying freight both ways, vessels trading in those ports can do better business.

Now, when after the war, the United States is supplied with so much merchant marine, will not the conditions be worse still for Canada and for Canadian railways? Apart from the Canadian Pacific which owns its ships.

Is the solution free, or at least freer trade to bring more ships to Canada with full loads, by importing directly more from Europe than through the United States where the discount is heavily against us? Perhaps a real preference on British goods to readjust this balance of trade? Would an agricultural credit, saving Western farmers from dumping new

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crops to meet call of banks and loan companies for quick turnover, help the situation?

Would national control of wheat, as a certain South American country controls its coffee output, help this country?

Finally, are we to keep on growing wheat indefinitely?

These are all large questions, not easily answered nor to be lightly turned, but which should be carefully and exhaustively and continuously and publicly thrashed out and expounded till, if possible, some fairly unanimous policy be intelligently acceptable to a large majority of our people and so avoid the weakening of indecision or dissension in our building up after war.

Some of these questions are stated very ably by Mr. Evans in his report, dealing in many essentials of Canadian economic conditions and of so much wider scope than the mere Georgian Bay Canal, that they should be perused by all interested in National development, quite apart from any exclusive interest in the canal project.

Defending the Home

Whatever be the solution of the many problems of national importance, there would seem little doubt about the wisdom of building up a strong home market, a great, productive and prosperous population.

To do this we must fill the land; and it can be filled only if conditions of life on the land offer profit and amenity, and amenity is very important, the lack of it that has largely depleted rural numbers.

If Ontario has lost its rural population steadily for the last thirty years and if Quebec has lost a million or so of its population to the New England States, why? Because life was more attractive elsewhere.

We have to compete for population, and at that, compete against heavy odds, and the result successful, is as important to manufacturers, if not more so individually, as to any other class.

A greater, denser, hardier and happy rural population producing more raw material, consuming more finished material, supplying abundant food, cheaper living, availing inexhaustible and more intelligent man power is the best backbone for the nation and none the less for the great industrial city.

It is in the light of this reasoning that I have been so urgently pleading in previous issues, for the enabling of small holdings and for the irrigation which would insure and enhance their production.

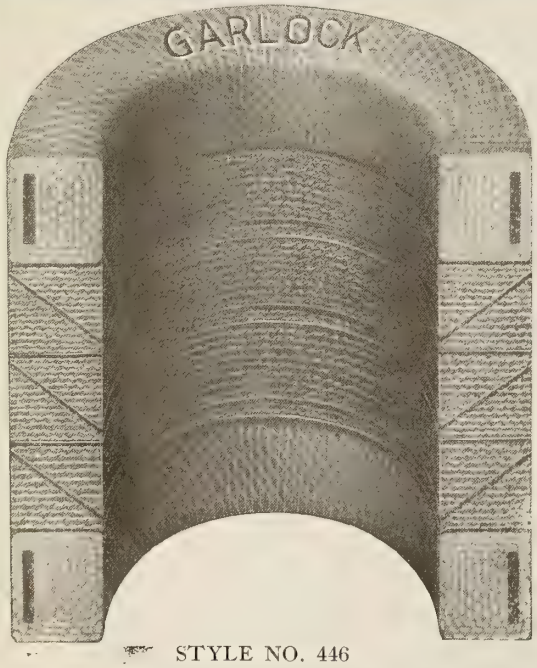
Might Have Been No Depopulation

If Ontario and Quebec had been able to offer such agreeable rural living in times gone by, it is doubtful if either would have been depopulated; I rather believe they would both have been enjoying the vast cumulative effect of retaining not only their natural increase but most of the immigrants who have come and gone.

The gift of talents, to us, in our natural resources; what account are we rendering?

There are splendid opportunities of applying irrigation at the gates of Montreal, of Ottawa, of Toronto, of Hamilton, and of other cities, so creating great garden suburbs, or cities if you will, of small and highly productive holdings; to retain and to attract population, to basically sustain the industrial and the general growth of our cities and of our plains.

There are surely men in the cities, big men, of big business, of wide and penetrating vision who will realize the necessity and the advantage of organizing the development of these promising and far reaching undertakings for the common weal.



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Whilst these projects are better planned as comprehensive wholes, they permit of being constructed, bit by bit, as inducement and encouragement be forthcoming from individual and from the State, towards ultimate accomplishment.

Foresight is integral of maintenance, of the maintenance of life and may one be pardoned insistence on a favorite quotation from Solomon :

"*Where there is no vision the people perish.*"

The Distillation of Hardwoods

By DR. J. S. BATES

(From "Conservation")

The destructive distillation of hardwoods is the only important distillation industry in Canada where wood is used as raw material. There are now 11 plants in Ontario and Quebec, and the industry is well organized. It is gratifying to note that manufacture is carried beyond the stage of the crude products, where so many of Canada's industrial activities cease, and that the specially refined and derived products are produced in Canada for local and export trade. In the limited list of chemicals which are regularly exported from Canada there are only three of much importance, namely, calcium carbide, acetate of lime and methyl alcohol, the last two of which are entirely produced by hardwood distillation. It is important to remember that practically all the wood alcohol and acetic acid which are so essential to modern civilization are produced by the destructive distillation of hardwoods. The plants in Canada consume, in the aggregate, over 500 cords of wood per day. Maple, beech and birch are the principle species used, although oak, hickory and other hardwoods are suitable if obtainable.

RE-EDUCATION AT A UNIVERSITY

How the authorities of McGill University in Montreal have been assisting the work of industrial re-education by allowing the use of machine shops and laboratories in the university buildings for instruction purposes

(From "Reconstruction")

In the early autumn of 1917, arrangements were made with the authorities of McGill University for accommodation in their buildings, to enable the Department of Soldiers' Civil Re-establishment to carry out portions of its industrial re-education policy in Montreal. The building best adapted to its use was the MacDonald Engineering Building, and through the generosity of the dean and the members of the faculty the Department was enabled to have complete use of the machine shop every morning in the week and two afternoons. The University also turned over the electrical laboratory for three full days per week; the telegraph room, fulltime; as well as the use of the thermo-dynamic laboratory, boiler-room and power house for the steam engineering students.

The advantages accruing from the use of the above have been inestimable. The plan is to place men in these various laboratories and shops for a portion of their course, where they will receive a thorough grounding along theoretical and practical lines. This will enable them, although only students, when they are sent out to industries, to carry on as useful men in concerns which have to pay dividends.

As a practical instance of this, the case might be cited of a man who, previous to enlistment, had been an electric wireman by trade, his chief occupation being the stringing of wire on

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the streets. He returned to Canada with a compound fracture of the left arm, and when his case came up for re-education he stated that he wished to become an electrical foreman. He spent six months in the electrical laboratory at McGill, where for three days in the week he received practical and theoretical instruction. During the remaining two and a half days he worked out problems in the draughting room, which were set for him by the instructor, during laboratory periods. In this manner he received a thorough theoretical training as well as practical work on the various machines in the laboratory. The remaining two months of his course he spent as assistant to the foreman in the electrical department of a leading industrial concern in Montreal. On the completion of his course he was given entire charge of the electrical plant as representative of this same concern in another town, and is making good. Incidentally, he is earning double the wages which he did before enlistment.

Experience of a Teamster

In order to make the matter quite clear another illustration might be given, that of a French Canadian who previous to war had been engaged as a teamster. He returned to Canada and during his convalescence learned to read and write. He was still convalescing when he entered the machine shop at McGill. There he spent four months, and after receiving his discharge preferred to go to work rather than to take up a re-education course. He went to a large industrial concern in Montreal as a machinist's helper. He was soon promoted to a machine of his own, and after he had been there a very few months was made a sub-foreman. He is now foreman in another of the shops and earning splendid wages and attributes his success to the grounding he received in the machine shop at McGill University.

Thus it may be seen that the system of utilizing these shops applies not only to industrial re-education cases, but also to cases of occupational therapy.

It should be noted that the Science Faculty did everything in its power to arrange its classes in such a way that the department might make the fullest use not only of its laboratories and shops but also of its instructors.

GOOD HOUSEKEEPING IN A FACTORY

A manufacturing plant is a man's home for at least half of his waking hours. If he spends half of his conscious time in good surroundings he is bound to seek to improve and beautify the surroundings of his home as well

By A. RUSSELL BOND

(From the "Scientific American")

A greenhouse may seem out of place in a factory devoted to the making of drills and internal gear axles for motor vehicles; and yet that is what I found in a little town in Michigan. It is a small town, hardly large enough to appear on anything but a railroad map, and the manufacturing plant is really the life and soul of the village. Strange as it may seem, the greenhouse might almost be considered the life and soul of the plant, for on it, in large measure, depends the industrial success of the institution.

The relation between employer and employee has undergone a radical change in recent years. No longer is the status one of master and servant or hireling, but the manufacturing

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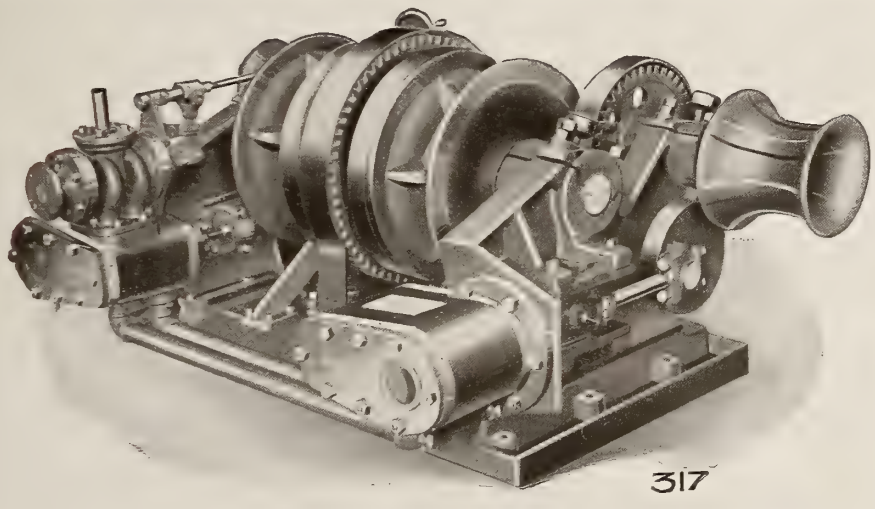
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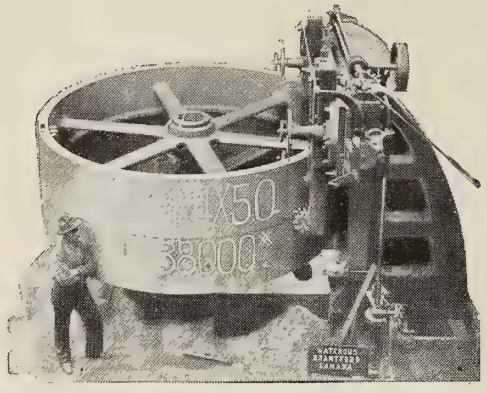
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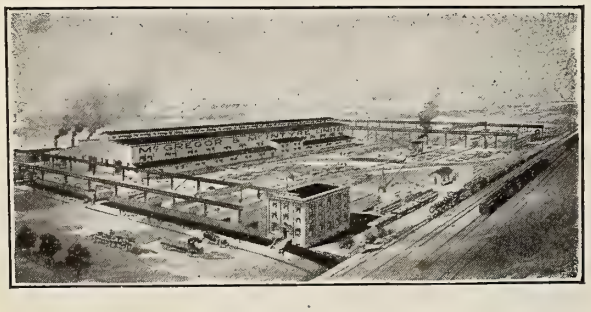
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plant is looked upon as a big community of which the man at the machine is a member. Even the term "operative" does not fully describe his position in the ideal organization; instead he is rated as a "co-operative" for he shares in the interest and also in the profits of the company.

Worked Out in Various Ways

There are various ways in which the co-operative scheme has been worked out. Every large plant has its welfare department, in which the interests of the individual are looked after. Not only is attention paid to his personal safety, but studies are made of his home conditions, and everything is done to raise the tone of the employee. This has been found essential to successful operation of the plant, because a contented man will do better work, and if a man is happy in his home this will be reflected in his work at the machine. However, in all welfare work there is danger of paternalism—men of a certain type are perfectly willing to sit back and let others do for them; the more they receive the less they will do for themselves. On the other hand, there is a class of self-reliant men who resent the efforts of the welfare worker and look upon him as an intruder. Welfare work calls for a great deal of tact, which, unfortunately, is not always exercised.

It is right here that the idea of the greenhouse comes in. The president of the plant referred to has his own notions about welfare work. He sums it all up in the idea of "good housekeeping" in the factory. He believes in appealing to the man who wishes to be treated as a man and does not wish to have his home affairs meddled with. He can quite sympathize with the family which resents having a welfare nurse come around to show mother how to wash the baby. He believes in treating his employees not as children but as *men*—men who have sufficient independence and self-esteem to take care of their own welfare. He realizes the importance of exerting an influence on his employees which will reach to the home, but he has tried to do this in an indirect and inoffensive way. For this reason he has converted his plant into a park. The grounds have been laid out by a landscape gardener, with well-trimmed lawns, flower gardens, shrubbery and shade trees, while the ivy-covered buildings are pleasingly and efficiently grouped and the interiors are kept clean and tidy, with plenty of light. Working in surroundings such as these the employee feels the dignity of his job. He finds in his surroundings an inspiration to cleanliness—which makes for better work. This builds up his self-esteem and is bound to be reflected in his earning capacity.

Improve Home Surroundings

A manufacturing plant is a man's home for at least half of his waking hours. If he spends half of his conscious time in good surroundings he is bound to seek to improve the surroundings of his home as well. In that way, the greenhouse spreads its influence throughout the whole community, and this reacts again upon the industrial efficiency of the plant.

This is but part of the welfare scheme of this plant, and while unimportant in itself, is of interest as indicating the indirect value of apparently outside influence on the general morale of a manufacturing plant.

In every organization there are to be found plenty of men who are full of ambition to succeed and better their conditions of life. In plenty of others the ambition is dormant, but it can be awakened if proper methods are used. Sad to say, in every such community there is a large percentage of men, usually amounting to about 30 or 40 per cent, who seemingly cannot be stirred at all. It is hardly worth while to do much for such men, but it is to the 60 or 70 per cent. of

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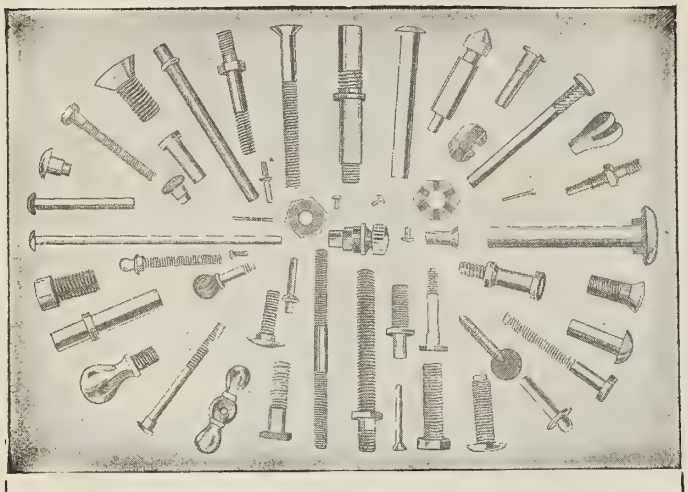
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employees who are capable of improvement and that are anxious to better their lot, that welfare work should be directed. In this plant everybody has a chance to succeed, and there is no limit to the height to which he can ascend.

Aside from the influence of pleasing environment the employees are given the advantages of a profit-sharing scheme, which is most liberal. Any employee is entitled to subscribe to what is known as a Subscription Lot consisting of one share of Preferred and one share of Common stock, together with one share of what is called an Employee's Participating Certificate. This certificate bears no par value but receives a liberal interest from the annual earnings of the company. The subscriptions are paid for at any time and in installments of any amount not less than $1.00 each. All cash dividends become due and payable after subscription, whether or not a final payment has been made; and such dividends are credited upon the subscription until the subscription is fully paid up. In this way the employee is induced to take an active part in the affairs of the company. He feels that his earnings have a distinct bearing upon the success of his company, and result in increased payments of dividends.

Other Features of the Plan

Houses of attractive design have been built by the company and are sold to high class employees at extremely liberal terms.

There is an employees' benefit association and not least among the attractions is the company band. As a part of the welfare work the company has built a very pleasing little theatre, fully equipped with footlights, spot-lights, screens, and apparatus for producing various scenic effects and illusions. A stock company has been formed among the men and very creditable performances have been staged. Last winter, a performance played to a full house every night for two weeks, at fifty cents per seat, and the proceeds were voluntarily turned over by the men to the Red Cross organization.

One or more of these various schemes of co-operation will catch the interest of practically every employee. The community spirit pervades the whole organization, and I could clearly see it reflected in the faces of the men and in their energetic work. It may be questioned that a plan such as this could be carried out in a very large organization, but it has proved ideal at this plant, which numbers 1,200 employees, and no doubt it could be developed in even larger plants were they subdivided into smaller communities. And, by the way, the necessity of subdivision has come to be recognized by certain organizations which have grown so large as to become almost unwieldy. That plant is bound to succeed which converts its "operatives" into "co-operatives."

The Shipping Situation

The shipping situation as lately made known by the Shipping Board, is as follows: The total losses, Allied and Neutral, from August, 1914, to September 1st, 1918, are 21,404,913 deadweight tons. The total construction, Allied and Neutral, during the same period was 14,247,825. The total enemy tonnage captured to the end of 1917 was 3,795,000. This shows an excess of losses over gains of 3,362,088 tons. The estimated normal increase in the world's tonnage, if the war had not occurred, would have been 14,700,000 tons. Adding this to the excess of losses over gains we arrive at a total net deficit, due to the war, of 18,062,088 tons. The Allied monthly construction exceeded the losses for the first time in May of the present year.

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UTILIZING THE CORN COB WASTE

Since they represent an almost total waste, corn cobs constitute, in view of the enormous amounts in which they are produced, perhaps the greatest agricultural waste product—But chemically, are a valuable source of material

(From the "Scientific American")

We are living at a moment when the greatest interest attaches to the conservation of resources and the utilization of waste materials. We are making every effort to insure that the systematic discarding of potential values so characteristic of nineteenth century industry shall cease. And one of the greatest potential values for which we have not heretofore found a use is the much despised corn cob.

The United States is the world's greatest producer of this cereal. Our annual corn crops range from two and one-half to three billion bushels. Expressed in bulk, this is about equal to our crops of all other cereals combined, and represents at least seventy per cent of the world's production.

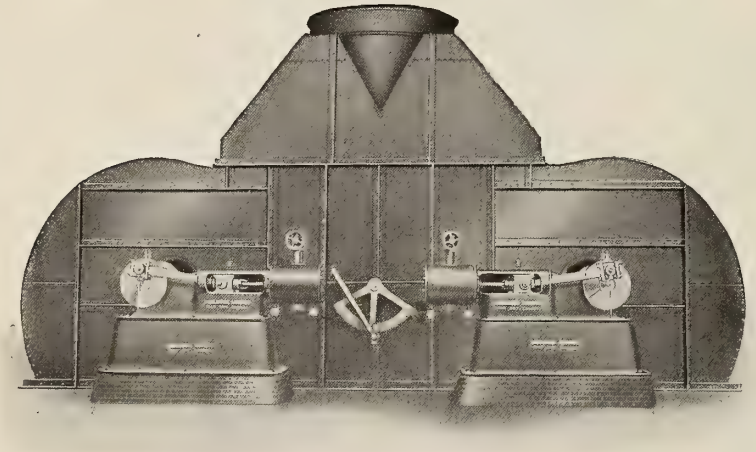
For every bushel of corn, there is approximately one bushel of cobs which, however, weigh only about one-third as much as the grain. These cobs are not now utilized to any extent. They have a certain value as fuel, and they have been used as an ingredient of stock feeds. They contain, however, little or nothing that is directly available for animal nutrition. Since, therefore, they represent an almost total waste, corn cobs constitute, in view of the enormous amounts in which they are produced, perhaps our greatest agricultural waste product. But from the chemical standpoint, they represent a very valuable source of material from which many useful products could be successfully obtained on a commercial scale, if we but knew how to go about it.

Work recently done by F. B. La Forge, of the United States Bureau of Chemistry, seems to point the way to a complete solution of this problem. It is of interest first to note that, as so often happens, Mr. La Forge was precipitated quite by accident into the study of the field in which he appears to have done such good work. He was engaged in another investigation altogether—one in which he required considerable quantities of the wood-sugar, xylose. In accordance with accepted methods he prepared this by treating corn cobs with sulphuric acid. While engaged in his work with the xylose thus obtained, the idea presented itself to him of deriving from it the acid base of baking powder; and as this would involve its utilization on a large scale, his interest was of course aroused to the possibilities of producing it commercially upon such a scale. But since the manufacture of xylose calls for only a small part of the cob, the most casual attack upon this problem could not fail to draw attention to the more inclusive one of finding a commercial application for the whole cob. The results of Mr. La Forge's investigations into this very significant by-way of industrial chemistry, while as yet unpublished, have already formed the subject of a talk given by him before the New York Section of the American Chemical Society; and it is from this talk that the following account is abstracted.

Four Component Parts

There are four principal products which may be derived from the corn cob. First comes a colloidal material consisting chiefly of a modified form of xylose, and which is obtainable to about thirty per cent. of the original weight of the cobs. It is immediately available as an adhesive in the paper box

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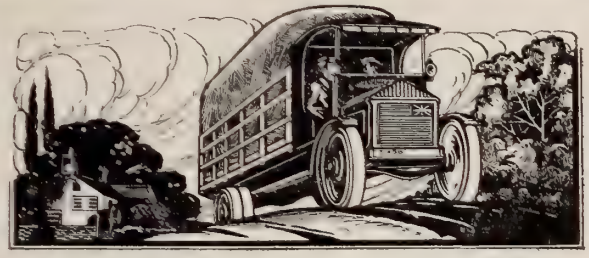
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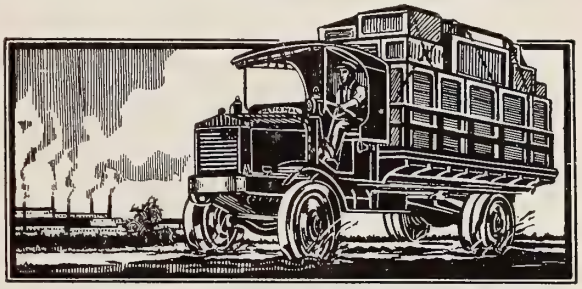
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HULL **CANADA**

industry, in bill-posting, labeling, etc., where its use in place of starch, dextrine and flour paste would make possible an enormous saving of these foodstuffs. After this substance has been removed from the cob, the next items obtained are about five per cent. in weight, of true xylose, and an indeterminate amount of acetic acid. Finally, the balance of the cob is at this point reduced to a very finely divided cellulose, which for many purposes might be expected to replace cellulose from other sources. Its physical state is such that it is capable of taking up unusually large amounts of liquids, syrups, etc.; so it could certainly be employed as an absorbent for the molasses in stock food, while many other uses would doubtless develop. The discoverer suggests that it might be available as a base for dynamite manufacture.

While the methods for obtaining these four principal products from corn cobs have not yet been tested out on a large factory scale, they are at least out of the laboratory stage, since the work is now carried on by means of autoclaves, powerful presses, centrifuges, and other equipment of corresponding magnitude.

First Stage of Process

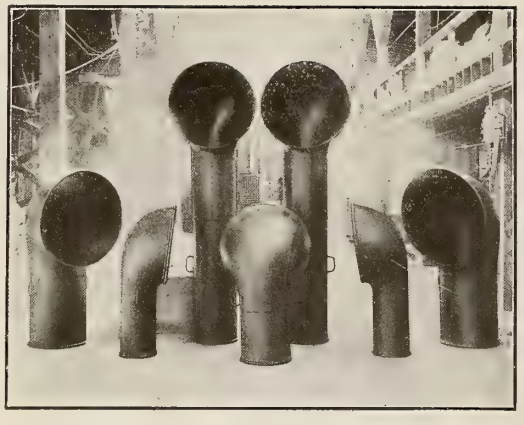
The first stage of the process is the preparation of the adhesive material. For this, the cobs are placed in a copper-lined autoclave, with just enough water to cover them, and are then subjected to heating at suitable temperature for about an hour. After cooling, the autoclave is opened and the contents subjected to strong pressure to expel the liquid from the undissolved solid residue. This liquid is then evaporated to a syrup in the open, and the product is ready for use at once. The whole process reads so very like an ordinary job of cooking that it must help impress upon us that, after all, cooking is just a question of chemistry—or, perhaps better, that chemistry is, after all, nothing but cooking with a college education.

For the recovery of the xylose which is responsible for the whole development, the solid residue from the first step is heated again in the autoclave, just as before, except that in this case about two per cent. of sulphuric acid is added to the water used. The result of this cooking is an acid solution containing the desired xylose; and this is evaporated, in a vacuum, to a thick syrup which, upon being left to stand, deposits the xylose in good crystalline condition. Here again, it will be observed, we have perfectly good cooking terms and procedures. But the good old-fashioned cook who separated her precipitates by skimming or draining or straining is left completely in the lurch by the up-to-date chemical cook. The latter, after a suitable length of time, whirls the acid mother liquor about in a centrifuge a few times, and separates the crystalline xylose in this more effective fashion.

Similarity to Cane Sugar

It will be seen that, in this process for obtaining xylose sugar from the corn cob, we have just about the same procedure as that employed in recovering the crystalline substance from the juice of cane sugar. In fact, the immediate product is almost pure white and greatly resembles cane sugar in appearance. It is, however, only about half as sweet. As suggested, its chief use is not as a sugar, but rather as a starting point in the preparation of gulonic lactone for use as a baking powder acid. The procedure here has been fully developed, along two lines, either of which appears to be quite feasible commercially.

An alternative use for the large amounts of xylose which would become available if the manufacture of corn-cob products should be undertaken on a large scale would be its conversion



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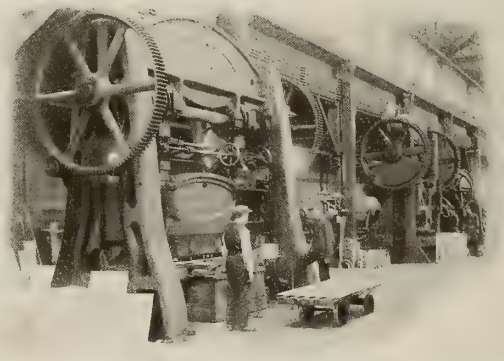
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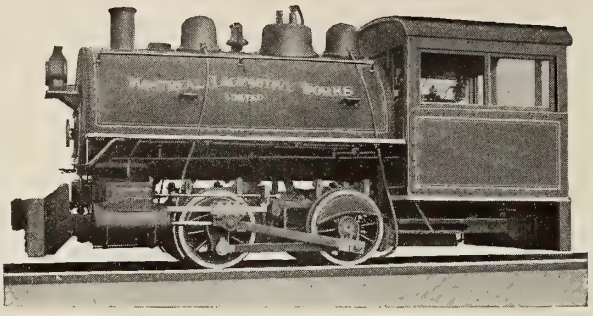
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into xylotol by reduction. This substance, a polyvalent alcohol, has almost the same physical and chemical properties as the more familiar gylcerol and could serve in many cases as a substitute for the latter. Work on the commercial reduction of xylose to xylotol is about to be undertaken.

In the operation last outlined, acetic acid is obtained with the xylose. The centrifugal separation does not distinguish between it and the balance of the liquid; but it can be recovered by allowing the steam from the autoclave to escape through a condenser.

We come now to the fourth product, and the final one so far as the mere reduction of the cobs is concerned. This is the crude cellulose which remains after the extraction of the xylose and the acetic acid. This material represents about fifty per cent. of the weight of the cobs, and is simply a highly porous and disintegrated form of cellulose. It contains a brown material which may for most purposes be disregarded, but which, when necessary, may be removed by leaching with dilute alkali solution, since it is alkali-soluble. This treatment yields a material which is almost wholly white. The possibility of uses based on the ground of its absorptivity has already been suggested; and these of course are direct, without further preparation. Its principal use, however, would be in the further manufacture of glucose. The method advocated for this is not at all new, being but an application of the very old process of Bechamp.

The Process in Detail

The press cake from which the xylose has been removed is washed, dried and ground. The resulting flour is mixed with enough seventy-five per cent. sulphuric acid to form a stiff dough. The only feature of this that would be at all strange to the farmer's wife would be the use of a deadly poison to wet the dough. This dough is allowed to stand for some hours—obviously to undergo the changes which are paralleled in the rising of the more familiar kind of dough. Then it is mixed with water and boiled for about an hour, after which the undissolved solid material is filtered off with a filter press, and the sulphuric acid removed by an application of slacked lime, followed by another filtering to get out the resulting calcium sulphate. The neutral solution remaining from all this is evaporated, yielding a light brown syrup which crystallizes to a solid cake in short order. As a matter of fact, however, we err in calling this solution neutral; it should be so, but it isn't. There are traces of acid present, as well as a good deal of the calcium sulphate that escaped the filter. By treating it with decolorizing carbon before evaporation this state of impurity is partly remedied; while the amount of sulphate present is reduced to a minimum by filtering it just before it reaches the syrupy state—at the last moment when filtering is possible, in other words. Here the candy maker will recognize a trick taken from his trade; that of waiting, and waiting, and waiting, until what we are waiting for can't be delayed another second—and then of pouring right away, in a hurry.

The Upshot of It All

The upshot of all this fussing is a light yellow or nearly colorless product, which bulks exactly half of the cellulose with which we started, while the other half of that cellulose is accounted for by the undissolved solids filtered off in the beginning. It is then possible to take these solids, and, by treating them in exactly the same way as the liquid from which they were drawn, convert half of them into glucose, which is added to that already obtained to give a total yield amounting to thirty-seven and one-half per cent. of the original cob weight. The second residue, it would seem, might be run through again, and again, and again, giving an infinite geometric series of glucose recoveries; but as a matter of fact, we get about all the glucose that is coming to us in the treat-



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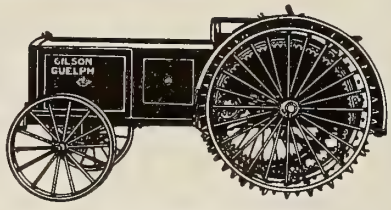
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ment of the first residue, and there is not enough to be had from the remaining solids to pay us for looking for it.

If the glucose product were to be used for human food, it would be necessary to employ the very purest lime in its preparation. Produced without special precautions, the samples which have been exhibited have had a slight metallic taste when put in the mouth in any quantity. This is apparently due to the presence of small quantities of magnesium in the commercial lime used in their manufacture. For use as stock food, little or no purification would be required; and if it were to be employed for alcohol manufacture, it would not even be necessary to evaporate it; what we have apologized for calling a neutral solution would serve perfectly well.

At present there are not sufficient data to estimate accurately the cost of preparing glucose by the method described. It would depend largely on the cost of the sulphuric acid and the lime used. The former is the determining factor, since a good deal of very strong acid is called for. At the prices of to-day, it would seem as though glucose could be made in this way for about the same cost as from starch. It is to be assumed that after the war, however, there will be a considerable drop in the price of sulphuric acid owing to its lessened consumption in the manufacture of explosives and to the restoration of pyrites importation from Spain. The process could then be worked to great advantage.

On the whole, the prospects held out by Mr. La Forge's suggestion are entrancing. If we will but imagine all our available corn cobs worked up into the products mentioned, we will find ourselves with enough glucose from this source alone to fatten all the cattle we could raise, or to make all the alcohol we could use. We would have xylose baking powder sufficient for all the biscuits that were ever baked; and there would be no such shortage of acetic acid as holds to-day. But we need not dwell upon such fanciful prospects as these. Our great supply of now useless corn cobs should be regarded rather as an almost inexhaustible source of material to maintain an industry producing the products which have been mentioned.

Ontario Forests Yield Handsomely

By C. L.

(From "Conservation")

The important part that the Crown timber lands of Ontario play in defraying the cost of civil government is indicated by the fact that during the year ended October 31, 1917, the forest revenue collected amounted to $1,695,703. This is an increase of $360,382 over the preceding year, and includes $115,327 collected from limit holders as fire ranging dues.

Nearly 100,000,000 feet less pine timber was cut than during the preceding year. While labor shortage was undoubtedly a factor contributing to this reduction, the fact remains that the cut of pine timber has steadily declined for years, due unquestionably to the progressive depletion of the white pine forests of the province, which formerly produced so large a proportion of the provincial forest revenue.

The change which has taken place in this respect is strikingly indicated by the fact that, while the cut of white and red pine has steadily declined in Ontario, that of tie timber and pulpwood has increased greatly. For example, the number of railway ties (mostly jack pine) taken out during 1916-1917 was more than double the number cut during the previous season. The total cut of pulpwood for the province was 445,978 cords, of which approximately equal amounts were cut from settlers' lots and Crown timber lands.

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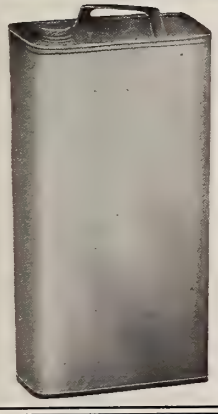
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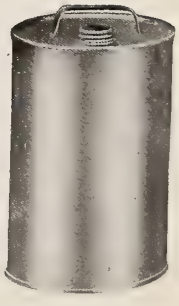
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ADVICE TO BRITISH EXPORTERS

Government publication points out that the least British manufacturers can do during the period of restricted trade is to take note of criticisms directed against them and examine their methods of production and distribution

(From "British Board of Trade Journal.")

Restrictions upon exports from the United Kingdom have grown more and more severe as the war has progressed, and manufacturers have become less and less able to meet the demands of over-sea buyers. They are rationed in regard to most materials, and they are suffering from a shortage of labor, so that they can not in many cases execute more than a small part of the home demands upon them. Under these circumstances it might appear useless to cultivate those markets in the dominions and colonies which, though recognized to be of the highest importance for the future, can not in the present be made fruitful. Nevertheless, a policy of complete inaction would be a bad policy.

There will be a great expansion in export trade after the war, especially with the dominions, colonies, and allied countries, and British manufacturers can not expect to reap where they have not tilled and sown. The least they should do, both manufacturers and merchants, during the months of restriction, is to take note of the criticisms which have been repeatedly directed against them, to examine their methods of production and distribution, to seize every opportunity of studying the rapidly changing conditions in over-seas markets which the war has brought about, and to make ready for the renewal of exporting activity when the war is over.

A Common Criticism

The most frequent charge leveled at British manufacturers is that they are—or were—unwilling to make goods in accordance with the requirements of a particular market. By constant repetition it had become almost an axiom before the war that, while British manufacturers offered for sale the goods which it suited them to make, German manufacturers offered the goods which it suited their customers to buy. It is probable that this charge had less evidence to support it than has been generally supposed. It assumes for its truth the existence of a system of standardization among British manufacturers generally which is not apparent to investigators. In fact, the conspicuous absence of standardized or mass production, whether of locomotives or buttons, is revealed and commented upon by most committees of inquiry into British methods. Those goods which large British manufacturers did produce in standardized qualities—such as screws, long cloth, serge and soap—were not only in large demand abroad but gave rise to few complaints.

Standardization was making progress before the war, but, as a rule, excessive individualism in manufacture, and not too great a love for standardization, has been shown to be our national defect. How, then, did the belief become almost universal that British manufacturers are less adaptable to over-seas conditions than their German rivals? The reply is, first, that many British manufacturers have in the past neglected to study the over-seas markets with the meticulous care devoted to them by the Germans; and, second, that the over-seas buyers have not explored with sufficient patience the field of British production.

There have been faults on both sides, which it is hoped the future will remove. When a colonial buyer has failed to obtain precisely what he wants after applying to one or two



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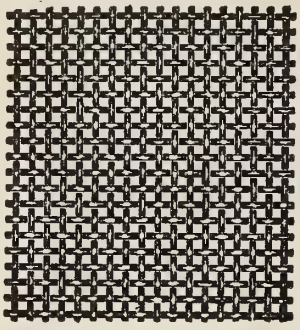
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large firms engaged in standardized forms of manufacture, he should not hastily conclude that there are no British firms ready to adapt themselves to his wishes. The persistent belief in the nonadaptability of British manufacturers is mainly traceable to the following causes: (*a*) British manufacturers have been asked to reproduce or provide some modification of articles already standardized in other countries, although the circumstances and local conditions of the original manufacturer of such articles made competition impossible for makers in this country. (*b*) An idea of some new pattern originates in the mind of an over-seas would-be buyer and, after transmission through several intermediaries, reaches the British manufacturer in an unintelligible form; that is to say, the over-seas buyer who, in his own interests, buys through an agent or a merchant firm has not always been careful to select a firm which gives proper attention to his requirements. (*c*) Changes or modifications are desired which the workers employed refuse to have anything to do with. In fact, the general conditions prevailing in our industries before the war placed the making of a large number of articles in the United Kingdom outside the sphere of a practical business proposition.

Break Down Prejudices

In the new world upon which we shall enter after the war is over British firms will still have to contend against and break down a deep-rooted conviction abroad that they are rigidly conservative. Their methods have undergone great change during the last few years—and had begun to change half a dozen years before war broke out—but time must pass before the export markets find this out. Though little active business can be done at present, the waiting time need not be wasted. British manufacturers can at least emphasize in their catalogues, by advertisement and through their agents, that they are ready whenever it is practicable to make the goods which their customers want to buy.

Another subject of complaint is the way in which inquiries are dealt with. It is often asserted that British firms do not pay sufficient attention to correspondence. It must, however, be remembered that under war-time conditions, firms are apt to be impatient with inquiries which they can not satisfy; and even if the inquiry is for goods actually in stock, a great deal of time and trouble must be taken up in dealing with it under present conditions. When the goods inquired for are not being made, it is not surprising that the utmost attention the buyer is likely to get is a polite note stating that the goods are not made or stocked, and regretting the inability to quote. But there is no excuse for the action of those firms which send no reply at all when the subject of inquiry has no immediate interest for them.

Neglect of Correspondence

The consequences of such inaction are well illustrated by the following incident: A New Zealand merchant sent the specifications for certain goods to one British firm and two American firms. The British firm did not reply at all, but the most unexpected results followed the applications to New York. Both firms replied that they were sorry they could not quote, but that they had passed on the inquiry to a few of their neighbors in the hope that they might be able to supply the goods. By the same mail the New Zealand merchant received no less than twenty-seven letters from New York, Philadelphia, etc., offering him what he required.

In view of the importance at the present time of firms doing all in their power to keep alive interest in their products, it should not be necessary to point out the desirability of replying to inquiries, even if the articles demanded

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can not be supplied. If this be done, the extension of our trade when the war is over will be made more easy.

The action taken by the American firms alluded to above, in passing on inquiries to others likely to be interested, represents perhaps a counsel of perfection, if we take into account the pressure on clerical and other staffs at this time. Nevertheless, it is a business policy which in the end insures its own reward. When an inquiry comes from overseas, an attempt in this way to help will, if sucessful, effect a great saving in time to the prospective buyer, and a firm which acts in this considerate fashion, even though no business results, will strengthen its connection with the over-seas inquirer. It is essential that all possible means should be employed to prevent orders from leaving Great Britain before exhaustive efforts have been made to place them here.

At this stage the Department of Overseas Trade (Development and Intelligence) can be and very often is of the greatest assistance in re-alloting orders which for some reason or other have not been taken up by the firms which originally received them. A number of inquiries of the kind made by over-seas firms are often referred to the department, but doubtless many more are ignored by the firms which receive them. As the work of the department becomes better known it will be able, owing to the advantages of its centralized information, to provide to an increasing extent both manufacturers and merchants with facilities for disposing of these inquiries. When lists are furnished of suitable firms, careful selection is made of those most likely to undertake the work required, and small firms are taken into account as well as large ones. One of the chief values of the trade index of British and Irish manufacturers now in course of compilation by the department for the use of its trade commissioners and other correspondents abroad lies in the fact that the names of small firms appear in it side by side with those of large and well-known institutions. The dominions and colonies will more than ever desire to place orders in the United Kingdom after the war, and it is for British manufacturers to display readiness to meet their wishes whenever they are reasonable and to co-operate in preventing orders from being diverted to enemy countries.

A New Kind of Japan

Preparation Discovered which Does Away with the Fire Hazard of the Ordinary Japans

A brand new development at the Chemical Exposition in New York will surely be of interest to fire insurance men. It comes from one of the great research laboratories under the supervision of a member of the American Chemical Society, and consists in a water japan for finishing metal surfaces.

The japanning ovens of manufacturing establishments run up the insurance rates and worry the underwriters, because japan, so called, used on bodies of automobiles, on typewriting machines, sewing machines, a great deal of builders' hardware and thousands of other things, is composed in the main of certain gums or bitumen dissolved in alcohol or other inflammable solvents. When the baking process is in operation in the japan ovens they are filled with explosive gases at a moderately high temperature. A spark will start an explosion and fire big enough to get away from a sprinkler system.

The new japan consists first in an asphalt base in an animal or vegetable oil. By reaction with an alkali, part of the oil is saponified, and the soap so formed acts as an emulsifying agent for the base in water. The particles of the base which are negatively charged adhere to the metal which bears a positive charge, and after baking the japan is adherent and insoluble in water. Before baking it may be applied with a brush, or articles may be dipped in the emulsion and heated to the boiling point of water, to give it the proper consistency.

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1-500 h.p. vertical cross compound, 4 valve engine with shaft governors, cylinders 18 and 24 x 24 in., 150 r.p.m., with 1-325 k.w., 3 phase, 60 cycle, 2,300 volt alternator direct coupled; also belted exciter. For Electric Power Transmission.

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1-1200 h.p. cross compound Corliss engine, cylinders 26 and 52 x 48 in., 85 r.p.m., crank shaft 22 in.

2-1200 h.p. cross compound Wheelock gridiron valve engines, cylinders 27 and 52 x 46 in., 90 r.p.m., crank shafts 24 in.

1-250 h.p. Wheelock type, cross compound type engine, cylinders 16 and 27 x 40 in., with belt flywheel, 16½ ft. diam. and 33 in. face.

The 600 and 1200-h.p. horizontal engines now have electrical generators mounted upon them which the present owner wishes to keep. Generators to be removed from engine shafts and engines sold without them.

These engines could be fitted with new flywheel rims for belt driving, or with spur gearing, making them available for any kind of factory duty.

All of them have been operated at 135 pounds steam pressure and about 25 in. vacuum. All in good order, some of them have been run recently.

These engines ought to be sold entire, and would be an advantageous purchase for any establishment where reciprocating engine power can be economically employed, especially where EXHAUST STEAM HAS COMMERCIAL VALUE, as it frequently has in isolated power plants, for drying or evaporating, or for heating buildings in this Northern Climate.

Attention of manufacturers is called to the possibility of using the cylinders, shafts, flywheels, or even the frames, of any or all of these engines as possible component parts of air and ammonia compressor engines, blowing engines and other heavy machinery requiring reciprocating steam power. Owners will consider reasonable offers for parts of the engines.

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Correspondence is desired with parties who may have immediate use for any or all of these engines, condensers, or parts thereof. Prices on application, subject to prior sale.

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AEROPLANE A COMPLEX MACHINE

Astonishing in length and variety is the list of articles entering into the construction of the aeroplane—Tremendous number of parts—Side-lines in innumerable quantity are both requisite and necessary to complete a machine

(From "Kelly's Monthly Trade Review")

The commercial possibilities of flight are very great, and the business of air transport almost illimitable. When the war is ended development of vast trade importance must be the result.

The demand for materials alone makes a trade proposition worthy of national consideration. In a single simple aeroplane, apart from the engines are included 3,200 feet of wire, 3,400 screws, 200 square yards of linen, 800 forgings, 4,400 nails, 900 steel stampings, 270 turnbuckles, 11 gallons of varnish, 65 pounds of aluminium, 40 feet of rubber, 244 feet spruce, and 59 feet pine. The range of materials required in manufacture is therefore very wide. To-day organic materials like wood and flax are required in preponderating quantities. In the aeroplane of the future, when aircraft is standardized, metal construction will be paramount.

Explosives, glues, sizes, oils, lubricants, pigments, paints, varnishes, resins, bleaches, and adhesives are all wanted in aircraft construction. Wood, paper, leather, rubber, unbleached linen, cotton, calico, ramie cloth, and silk are in demand. But the industry is in its infancy.

The aircraft trader is keenly watching other important markets. He must be alert to copper in the United States, the comparative prices of tin, steel supplies, and the great outlook for timber and fabric. General business men have scarcely risen to the fact yet that the aeroplane business is already a great and important one. It involves welding plants, aluminium, castings, bent timber parts, bearings, blowpipes, brass sheets for propeller tips, cable coverings and cable controls, carburetters, and celluloid.

The Many Parts of the Machine

Clothing is of high importance, as traders near the various military and naval schools of aeronautics can testify. Cords, tapes, threads, ropes, electric accessories, electric cables, enamel and flare lights are wanted in large quantities. Gauges goggles, magnetos, metal parts and fillings, parachutes, piston rings, propellers, pyrometers, radiators, rigging, safety belts, searchlights and landing lights, shackles, sheet-metal pressings, small tools and sparking plugs, springs, steel tubes, tanks and cowls, taper pins, and small wares, time recorders, tires and wheels, vices, washers, wind-shields, wire gauges, wirework, and woodwork machinery—to name but a few side-lines of requirements apart from engines the vital necessity—are all requisite and necessary.

But the market in materials, apart from manufacture, will be extensive and the demand great. It is growing by leaps and bounds. The wings of aeroplanes require textiles, but the immediate future in the light of recent experiments might bring into prominence celluloid, ebonite and vulcanized fibre. At the present time linen, cotton, silk, and calico are used.

Non-ferrous metals—such as antimony, nickel, magnesium, tungsten and zinc in alloy with aluminium—are wanted. In fact, the various aluminium alloys are almost essential for the wings and aillerons. Nor is the "dope" market to be neglected, "dope" being the name given to the coatings applied to fabrics or coverings of aeroplanes. Protracted experiments have resulted in well-defined results.



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FOR DOMINION LABOR EXCHANGES

Natural unit of labor distribution is national —Nothing less than the authoritative co-ordination of labor migrations, with foresight and intelligence, will deliver us from the loss inevitable when labor is left without guidance

By J. W. MACMILLAN

(From the "Montreal Journal of Commerce")

We are far short of having adopted a sufficient national policy regarding the distribution of labor. There is, indeed, no margin of the unemployed at the present time, and therefore the immediate necessity does not press hard upon us. But with the closing of the war there will be a sudden transformation of the scene. Munition factories will close overnight. Hundreds of thousands will be thrown out of work. The returning soldiers will require jobs. It is impossible to overdraw, perhaps it is impossible to imagine, the dislocation which industry will suffer. And all our preparations in the way of providing work will be hampered and baffled unless we possess the machinery for rapid and precise distribution of labor.

Even apart from extraordinary conditions arising from the declaration of peace we shall be back again to a normal state of things whch demands nothing less than such a system of labor exchanges. The old, recurrent cycles of expansion and depression will return, with the depression first to come. The phenomena of 1913 and of 1908 will be repeated in 1920, more largely and poignantly. The question of the labor turnover will be keenly felt. It often requires the "hiring and firing" of more employees than are at any one time on the payroll of a plant to keep that plant in operation. This, too, will be felt more severely during the reconstruction period. And one of the chief causes both of the cyclical recurrence of good times and bad times and of the wasteful labor turnover is to be found in the mal-distribution of labor. Left to itself, without sufficient information, without intelligent direction, at the mercy of commercial employment agencies, it wanders confused and harassed, to its own hurt and embitterment.

The natural unit of labor distribution is national, as I pointed out in a preceding article. The natural authority then is the Dominion Government. Nothing less than the authoritative co-ordination of labor migrations with foresight and intelligence, will deliver us from the loss and hardship inevitable when labor is left without guidance.

The British System

In Britain there is a thorough system of labor exchanges in co-operation with the trades unions, and with the assistance of volunteer advisory boards in each geographical centre. Such an advanced programme is beyond the industrial stage to which Canada has attained. We may perhaps learn more from the United States, where the conditions are more like our own.

The Federal Employment Service of the United States has been developed during the present year. Its friends and champions desire its extension far beyond the limits which it has attained, and their hopes are encouraged by the success which it has achieved in the fields which it has touched, and by the general approval of its efforts. It is spending during the current year an appropriation of three-quarters of a million dollars. It has amalgamated such Federal and State Employment Services as already existed, and bent them to the one purpose. It has occupied strategic points throughout all the Republic, having over five hundred bureaus in operation scattered through about fifty states. It has taken charge, for

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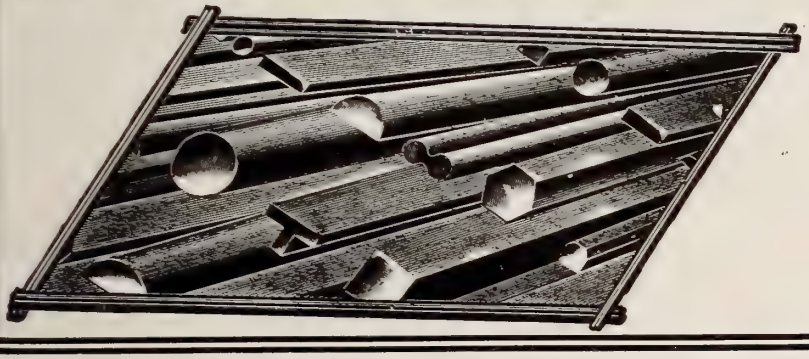
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the most part, of the administration of the "work or fight" laws which the several states have enacted. It has taken over the hiring of all railroad labor west of a line drawn through Buffalo and Pittsburgh. How much this means may be seen from the fact that the private commercial employment agencies have been accustomed to place a hundred thousand men each year from Chicago alone. It has taken over the hiring of all unskilled workers in war factories, and intends to go on to the hiring of skilled workers as well.

The Scheme in New York State

The method of accomplishing this handling of the war workers may be shown from the details of the launching of the scheme in New York State. Mr. C. B. Barnes, who had been the official in charge of the employment agencies operated by the State of New York, was named as Federal State Superintendent. Fourteen districts were created within the State. In each of these a "community board" was organized to assist in the distribution of the unskilled labor. Members of these Community Boards were chosen from the ranks of employers and organized labor. Part of the duty of these boards is winning the co-operation of employers in non-essential industries, whose employees may be drafted away from them.

Over these district Community Boards there is an Advisory Board for the whole State. It also is formed of representatives chosen from employers and labor unions. It acts as a clearing house for the Community Boards.

Private employment agencies all over the State were notified that they must cease from placing labor with factories doing war work. They received the following notice:

"You are hereby prohibited from accepting any order for any kind of unskilled male workers from any firm within or without the State of New York, doing work, directly or indirectly, for the United States Government. Any orders of this kind received by fee-charging employment agencies must be referred to the nearest office of the United States Employment Service."

The private agencies are also required to work under permits from the Federal Employment Service in recruiting unskilled labor for other employments.

Male and Female Labor

One of the suggestions I cited in a recent article was that female labor in Canada should be worked into the war factories, and male labor worked out of them into the more permanent industries. One can see how effective such a system of Government employment agencies could be in working such a policy through.

Chicago has had a fruitful experience during the last few years in regard to employment agencies. It is only three years since, after a hot campaign in State politics, the control of the free employment bureaus of the State was wrested from the hands of the political spoilers. While these gentry controlled them they were trusted neither by employers nor by laboring men. When the rescue had been effected an Advisory Board was named by the Governor, of non-partisan and disinterested persons, and they became of invaluable service to both employers and workers. These State bureaus were taken over by the Federal Employment Service early in the present year. Their first act, under the new management, was to prove that the "labor shortage" cry was fallacious. There were, it was discovered, enough workers seeking employment to fill all the demands of the war industries. What had been lacking was some means of bringing the manless job and the jobless man together. Under the former uncentralized and competitive system of distributing labor through private agencies everybody had believed that there was a shortage of



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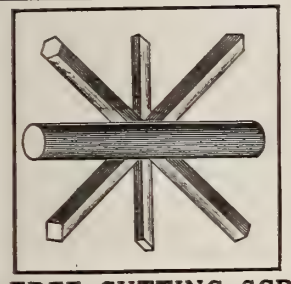
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labor. The first essay of a competent labor service proved that there was no such thing. But, how much the out-of-works must have suffered in their ignorance, and how much the predatory loafers could profit by the prevalence of such a belief!

Prof. Graham Taylor, who was one of the first members of the Illinois Advisory Board, comments on the results of the Federal Employment Services as follows :

"They should lead to a very prompt and thorough effort by all the State and Federal authorities involved to develop and standardize a country-wide employment service that will prove adequate to meet the war's emergent demands upon industry not only, but to provide in advance for the re-employment of the returning soldiers as the army is demobilized. Thus the problem of employment will be recognized as that of the nation demanding a permanent national policy and means and management thoroughly adequate to carry it out."

German Textile Substitutes

(From Various German Papers)

The German *Pfaelzische Post* says: "The war has brought to light the most diverse substitute materials. A really good and useful material to take the place of the missing jute is to-day the so-called Textilit. Textilit will remain after the war and be counted among the raw materials of the textile industry. Textilit is a mixed product, the result of a paper thread and a fibre thread being twisted together. It contains only a very small percentage of long fibre, yet has proved itself a full substitute for linen and jute. Weaving and sewing yarns and webs of all sorts, also bags, are made from it. The uninitiated cannot distinguish the new products from the former linen or jute fabrics. Through the admixture of fibre material there has resulted a decidedly greater firmness than was the case with pure paper fabrics.

Already twenty-three of the largest factories of this branch are engaged in preparing textilit and have formed the Deutsche Textilitgesellschaft at Hamburg. By reason of the experience obtained so far with textilit it is destined, in view of its good qualities, to become much more widely known, and the goods manufactured from it will remain in use even after the war.

Eight large German weaving material firms have united to form the Augsburg Cellulon Company (Limited), with a view to the production of cellulon yarn on the basis of a new spinning process. The yarn to be produced will serve primarily for the supply of the army, and will not yet be available for the general public. It is pointed out that hitherto cellulon yarn has been for the most part produced and worked up by the paper industry. Now the textile industry proper is undertaking this production, and is turning serious attention to the use of cellulon-yarn fabrics for articles of washing linen.

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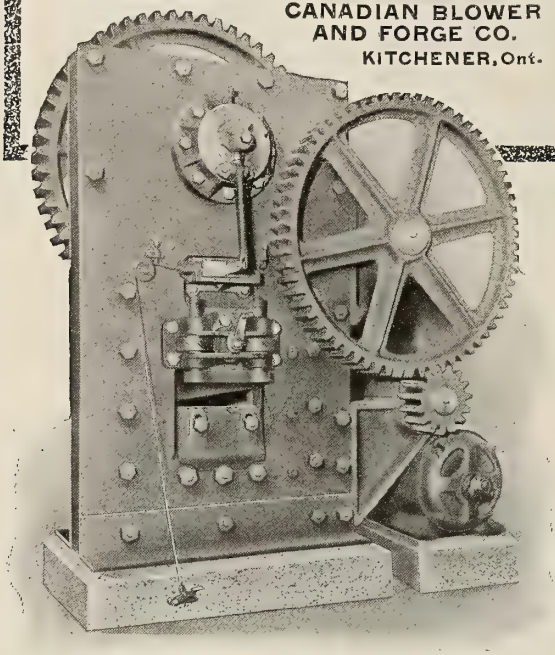
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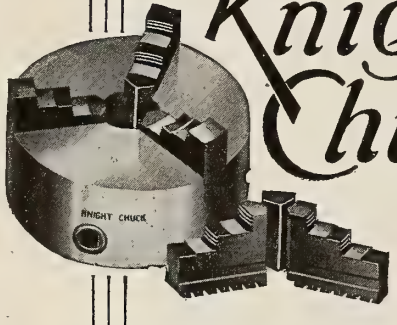
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Reconstruction in Canada After the War

(*Continued from page* 68.)

railroads, and close enough to each other to allow of inspectors to keep in touch with the soldier farmers so as to give them advice and to correct wrong methods.

But still we have left the disabled and the crippled men, who most certainly should have the greatest of care lavishly spent on them. Some there will be who, though crippled, can be taught to earn a profitable income by means of a trade suited to their disability, but we must at the last arrive at that most unfortunate body of men who are totally unable to support themselves. Let us not suppose that they cannot earn their living, for surely, surely they have already earned not only their living but also the respect and deference a happy people will most willingly and lovingly pay them. These, our honorable creditors, should be well housed, and while we build for them let us not erect anything which partakes of the nature of either a hospital or a barrack, but only of the comfort and surroundings of a home. Let us provide for them the most expert of doctors and surgeons, and the most sympathetic of nurses, while at the same time we ease their minds by providing with no higgling spirit for the needs and comforts, yes, and even the luxuries of those who were formerly dependent on them, so that no nation and no people should ever have cause to point the finger of scorn at Canada, and moreover, so that we ourselves partaking of the peace these men have helped to win for us, can enjoy the fruits of peace with consciences themselves at peace.

Having now attempted to dispose of the problem of the demobilization of the army, it is only logical to ask whether in the future we shall be blessed by such a peace as to render the upkeep of a standing army unnecessary, or whether we shall on the contrary be forced to create a larger permanent force than Canada has hitherto supported during the years of peace. Perhaps it were most advisable to retain only a small standing army, but one adequately served by officers and men both highly trained in the various sciences so that they should at all times keep abreast of the latest and most approved engines of war, and so that they should stand ready at all times to train and equip at short notice a force large enough to engage any possible enemy, either in conjunction with the "police-army" of a possible League of Nations, or with the forces of this Empire and its Allies. Further, it is considered that this great war has proved that any man, so he be healthy and strong, can be trained to work with his comrades, and to use military weapons in a very short space of time, and hence it is only necessary to see to it that the health of the nation in general is well preserved during the times of peace.

The Health of the People

Hitherto the health of the individual has been in great measure proportional to his income and his own private idea of that term. The result of this has been very deleterious to the health and earning capacity of the individual, and we get a vicious circle in which income and health act and react on each other till the result is a dependant on the State purse. But this result, bad as it is, does not contain the whole miserable story, for where the sufferer has such a disease as consumption, he not only hurts himself but also the community in which he lives, and the danger, not ceasing there, is passed on by him through his children into the next generation. Such a state of the laws governing the health of the nation calls for a drastic change in our methods of giving State aid to the poor and diseased, and to our methods of preventing the spread of diseases. In the same category we find that even such an important process as childbirth is left in the case of the poor, and on the prairies

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even in the case of the comparatively affluent, to the ignorant though well-intentioned ministrations of the nearest feminine neighbor. How many women could be saved for a life of usefulness? How many children could be saved to the State? How many children could be saved from blindness?—if only there were doctors and suitable institutions to care for the women when they are in that condition.

Contagious and infectious diseases then should in the future be most rigidly segregated, and some means must be found whereby there shall be the necessary number of physicians and nurses to serve the community, whether it be urban or a scattered prairie community. The only means capable of bringing this necessary help to such communities, is that of employing the help and paying for it out of the public purse. In the British Isles they now have a scheme of free attendance by surgeons and nurses, so that it would be possible by examining into that scheme to change and adapt it to the conditions obtaining in the various parts of Canada, for it is evident that what will suit Eastern Canada would not suit the prairie provinces.

Such a method of supplying medical aid would go a long way not only in ameliorating the conditions of life and in raising the general standard of health both of the young and old, but also in an increase of the work and the quality of the work done by the community at large; but, however happy this result, it is not all that we can possibly expect, for it is easily seen that were the workers of the country better educated, the labors of the doctors would be less onerous, and consequently fewer doctors and nurses would be required.

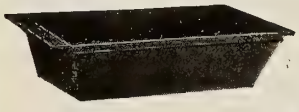
Education, then, is another field in which it would advantage the State to interest itself. We already have in Canada a very excellent system of primary and secondary education, but for many reasons we cannot be considered to have done enough. Perhaps on investigation and careful consideration it would be judged that the system in use at present is adequate; later on in this paper it will be pointed out that if the worker have more leisure he will, if encouraged, be willing and eager to increase his knowledge by attending night schools. Such institutions have lately been instituted by the principals of some of our schools in the cities, but there are not sufficient night schools to render their usefulness and advantages patent to all the workers. So that it would be a wise measure to create and equip such institutions in a whole-hearted attempt to induce the workers to take advantage of them for their own sakes. Besides the night school and its development, we can usefully increase our effort in the direction of technical colleges, which should partake of the double character of night schools and day schools, and we suggest that the technical colleges in Scotland be taken as a type.

Education of the Worker

This war and its hidden causes, its conduct and the drastic changes in the life of the nation, together with the consequential upheaval in the labor market, have served to accentuate the interest of the worker in both national and international politics, to that degree that he has already seen that if he desires to understand and control the government of the country, he must necessarily educate himself to a far higher degree. Following this conclusion up, he logically arrives at the conviction that he must, to obtain his education, find some means to decrease the hours of his daily toil and at the same time increase his earnings. So that it is reasonable to suppose that it will not be long before labor will insist, where it pleaded before, on a curtailment of its working hours. It has been proved by careful observation and experiment in the munition factories in England, that a girl refreshed by adequate rest and sleep can produce more in a shorter period of time than she could in a lengthy period which necessitates a short period of rest. Many of these factories are producing almost twice as much after having undertaken to work under the principle of short hours of labor, as they produced when the girls were overworked and overtired under the system of overtime employment. The principle has been proved. Why cannot there be a schedule of laws drawn up and enforced so as to allow all workers in Canada to have the benefit of a longer period of recreation and rest, and their employers the satisfaction of a larger turnover and the advantage of a satisfied set of employees?

But the matter does not end there, for the employees would be quick to see the larger turnover in the factory and would be just as quick to demand a higher wage. At a previous point in this paper an increase was suggested in the tax on incomes and dividends. Should that suggestion be transformed into fact, then we shall have the employer reason

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that since his increased income, the result of shorter hours of work, is to go into the coffers of the State, it would be worth his while to obtain the goodwill of his employees by giving them at least a portion of his larger turnover in the form of better wages. So that taking the idea of shorter hours of toil as our start, we arrive at the satisfactory and logical conclusion that we would also obtain larger wages.

But not all factories and not all directors of factories and workshops would be willing to increase wages as promptly as our hypothetical employer, and hence it will be necessary for the State to fix a minimum wage and devise some method of coercing the recalcitrant employer.

A Basis for Wages

The Canadian Board of Trade, month by month, after studying the increase and decrease in the cost of a large number of foodstuffs and other commodities, publishes an "index figure," which shows approximately the increase or decrease in the general cost of living. It should be possible in connection with the fixing of a minimum wage, to enforce a system whereby the factory or firm wishing to pay the minimum wage, would be forced to grant a bonus to its employees which should be proportional to the rise or fall in the "index figure" published by the Board of Trade. This scheme, it is suggested, would result in a fair wage.

So far we have considered taxation and the needs of the workers of the community, but the employer and producer of Canadian commodities should also benefit by any scheme of reconstruction, for a nation is such that if the individual is equably treated, the resultant good enters not only into his pocket, but also into the pockets of those around him. And most certainly it is argued that were the above suggestions carried out, then we should obtain in Canada a great increase in the number of our factories and in the variety of our products. It behooves us in consequence to find markets for these products, and markets wherefrom we may purchase those things we need but cannot manufacture.

It is with reluctance that we turn to Germany to furnish us with an example which we would do well to follow. German trade had during the pre-war period increased by great leaps and bounds, and on examination we find that a large measure of her success was dependent on not only her merchants, but also upon her consuls and ambassadors in all parts of the world. These men invariably set home descriptions of the various needs of the country they were resident in, together with a statement of these needs as supplied by other nations. It would be wise if Canada followed this plan of trade campaign. We should have, if not consuls as commercial travellers, at least men trained to that calling who should advise the various industrial concerns of Canada as to what products are needed, and in what particular shape they are most appreciated. And on the other hand, they should also advise Canadian buyers as to the products of the foreign country, so that we could buy in the cheapest and most suitable market, and sell where there would be the greatest profit.

The French and English Elements

So far in this paper changes have been suggested and subjects treated of, which though controversial, are not incapable of being discussed broadly in a short paragraph, and they have only been outlined, without any attempt at a detailed and minutely exact statement of all the pros and cons of each subject. But it must be remembered that these are only suggestions, with short statements of the reasons why they are considered worth translating into practical politics; and further, these suggestions, it was urged, should be put

RE-CONSTRUCTION

With discussion of re-construction epidemic, Canadians are beginning in sober earnest to contemplate the magnitude of the mortgages contracted during the last heroic years—years spent in forcing the Hun to ignominious defeat and surrender.

Inevitably such contemplation leads to a recognition of the necessity of production, manufacturing, and marketing on a scale never before attained during the nation's history.

Fortunately, Canada is so situated that greater production from the great basic sources of wealth, the field, the forest, the waters and the mines, is largely a matter of organization. Marketing—by rail and water—of the products of this increased primary production and of greater output from factories and business establishments throughout the country, can be adequately cared for by the transportation organizations now operating within the Dominion.

The Canadian Northern Railway serves an Empire equal in extent to the wealthiest, most productive part of Europe. The vast area is rich in resources. There is fertile land in abundance, pulp forests of magnificent proportions, mineral fields that are little more than scratched.

If "opportunity" may be measured by the relation between the number of people in a given locality, and the free gifts that nature provides, certainly within the limits of the resources rendered accessible by the Canadian Northern, there are awaiting opportunities in abundance.

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GRAIN MARKETING—Collecting elevators having 26% of the total capacity of Western Canada are served by the Canadian Northern Railway; licensed elevators having 47% of the total capacity in Canada are on the Canadian Northern Railway line.

FLOUR—Flour Mills having 51% of the total daily capacity in Canada are on lines of the Canadian Northern Railway. In British Columbia the C.N.R. proportion is 90%; in Alberta 44%; in Saskatchewan 74%; in Manitoba 81%; in Ontario 34%; in Quebec 90%; in Nova Scotia 15%. At Duluth, which is considered separately, the daily capacity is 5,500 barrels per day.

LUMBER—Lumber Mills producing 30% of the output in Canada are served by the Canadian Northern Railway, while 32% of the total is marketed by water. In British Columbia the Canadian Northern proportion is 34%; in Alberta, Saskatchewan and Manitoba 70%; in Ontario 33%; in Quebec 28%; in Nova Scotia 28%.

PULP AND PAPER—Pulp and Paper plants having 53% of the capacity of Canada are served by Canadian Northern Railway lines. In Ontario the Canadian Northern proportion is 60%; in Quebec 64%, and in Nova Scotia 50%.

COAL—For the last coal year the Canadian Northern handled from stations along its western lines, 1,390,496 tons. Of these more than a million tons were handled from mines along its lines in Alberta and Saskatchewan. The remainder would be that shipped west from Port Arthur and Duluth.

LIVE STOCK—During the calendar year 1917, live stock received at Winnipeg, Calgary and Edmonton from stations on the Canadian Northern Railway western lines, totalled 419,737 heads. The bulk of these of course consisted of cattle and hogs. This total is an increase of nearly one hundred thousand heads over the year 1916, and which indicates to a striking degree the rapid development that is taking place in the tremendous mixed-farming areas served by the western lines of the Canadian Northern Railway System.

FARM AND DAIRY PRODUCTS—This is usually regarded as an Eastern Canada production, but there has been a marked growth in the totals of butter, cheese and eggs handled over the western lines of the Canadian Northern Railway System. During 1917 there were handled from points west of Port Arthur 4,073 tons of butter; 2,990 tons of eggs and 536 tons of cheese—a total of 7,599 tons, and an increase of nearly one thousand tons over the shipments for 1916, and surely an eloquent evidence of the enlarging activities along these lines in the territory served by the Canadian Northern in Western Canada.

After the war these great essential industries will leap ahead once the people, long inured to the stern demands of war, have re-directed their energies to the prosaic occupations of peace.

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before the various sub-committees for their close consideration. But, withal, it is judged that these suggestions only have included those subjects and those changes which have at some place in the various countries of the world been tried and tested. We now come, however, to a subject, the discussion of which has almost from its inception been in an acute stage—the subject relating to the encouragement and propulsion of some means which would result in the mutually better understanding between the French and the English. It has been said that our French question is almost exactly similar to the Irish question in the British Isles. This may be the case, but the latter subject has evidently nowhere been treated with any success or even legitimate hope of success; so that there is nothing to take as an example.

Statement on Relations

Would it not be possible to ask Sir Wilfrid Laurier as a chairman, and a committee appointed by him or elected by the French, to go over the whole question and to submit a statement as to how the relationship between the French and the non-French Canadian could be made entirely amicable? If such a statement were once extant, it could be discussed by Parliament or by a committee appointed by it, consisting of both French and non-French members, and finally a revised statement could then be put before Parliament for its consideration. Possibly then a Bill could be drafted including all the requirements of the French; the Bill eventually to be put before the people for a referendum. This suggestion is not based on adequate knowledge of the whole situation, but it is left broad enough to be cut down and pruned to the proportions found necessary.

Before leaving the task essayed in this paper, it may be permissible to add one more suggestion, which would only be feasible if a number of nations could be brought into the scheme proposed.

We have, as a part of our everyday life almost, the use of the postage stamp to send letters and parcels to all parts of the earth. Before we could find means to admit the carrying of parcels by the Postal Service, we had the means to carry letters. An expansion in that idea took place so we were enabled to send parcels. Why, if we can send a fairly large parcel, can we not send a larger and a larger one, till finally all goods are sent by parcel post through the Postal Service?

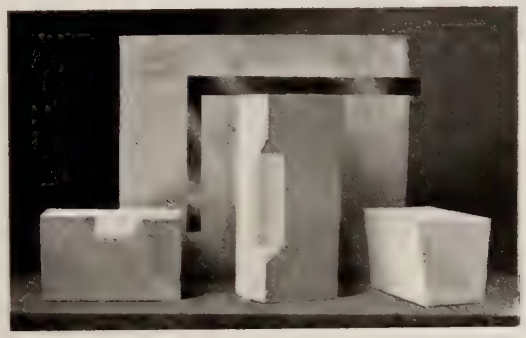
Control Shipping Internationally

Cannot some scheme be devised whereby all the shipping of the Allied Nations, or of the Nations within the League of Nations, could be controlled internationally, and rates made low enough merely to defray expenses, including those of upkeep, and those for the creation of a fund for improvement in the shipping itself? The revenue from this source could be used as a central fund for the League of Nations, or divided proportionately between the various countries. This suggestion, though at first glance seems to be treating of something extraneous to our subject, is nevertheless, a statement of a possible change for the better in the carrying trade of Canada.

And those who shrink from a programme which involves the reconstruction of Canadian trade, are still thinking in terms of selfishness, and are not ready for the wider international outlook, without which the idea of a League of Nations cannot be achieved in practice.

There is no time for hesitation and scepticism. To-morrow must be the beginning either of the era of reason and love, or of another era of ruthlessness.

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*Scythes & Co., Ltd., Toronto.

BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.

BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.

BAND RESAWS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

BANK AND OFFICE RAILINGS AND CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

BARS, iron
London Rolling Mill Co., Limited, London, Ont.

BARS, steel
London Rolling Mill Co., Limited, London, Ont.

BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.

BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.

BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.

BATTERIES, Flashlight
The Canadian National Carbon Co., Ltd., Toronto.

BATTERIES, Storage
The Canadian National Carbon Co., Ltd., Toronto.

BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto

BEARINGS, pillow block and upright
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.

BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.

BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.

BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.

BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.

BENT GOODS
The Crown Lumber Co., Woodstock, Ont.

BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.

BISCUITS
The Montreal Biscuit Co., Montreal, Que.

BLACK SHEETS
*A. C. Leslie & Co., Montreal.

BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton, Ont.

BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.

BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.

BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor, Ont.

BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited. Montreal.

BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.

BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.

BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.

BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.

BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILER STANDS
Anthes Foundry Ltd., Toronto.

BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.

BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The National Acme Mfg Co., Montreal., Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.
*United Brass & Lead, Ltd., Toronto

BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.

BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.

BOOKLETS
R. G. McLean, Toronto.

BOOKS, blank
*The Brown Bros., Ltd., Toronto.

BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec Que.

BOTTLES. Hot Water, Brass, Nickel Plated.
*Wentworth Mfg. Co., Hamilton.

BOXES
*Crouse-Hinds Co., Ltd., Toronto.

BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.

BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.

BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.

BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.

BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited, Montreal.

BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto

*For Display Advertisement see Index, Pages 1-2

BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto

BRASS GOODS
*Penberthy Injector Co., Ltd., Windsor.
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead Ltd., Toronto.
*Wentworth Mfg. Co., Hamilton.

BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS RODS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

BRASS SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.

BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.

BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*United Brass & Lead, Ltd., Toronto

BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.

BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.

BRIDGES, Railway and Highway
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.

BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRONZE SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.

BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

BRONZE TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.

BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.

BUCKET TANKS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Bennett & Wright Co., Ltd., Toronto, Ont.

BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St. Johns, Que.
Toronto.

BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Barrett Co., Ltd., Toronto and Montreal.

BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal. Que.

CABLE ACCESSORIES
*Crouse-Hinds Co., Ltd., Toronto.

CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.

CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.

CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.

CALENDARS, ADVERTISING NOVELTIES, etc.
Lawson & Jones, Limited, London, Ont.

CAMERAS
Canadian Kodak Co., Limited, Toronto.

CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford. Ont.

CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.

CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.

CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.

CANVAS
*Scythes & Co., Ltd., Toronto.

CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.

CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.

CARBONS, Electric
Canadian National Carbon Co., Ltd., Toronto.

CARBONS (headlight)
*Crouse-Hinds Co., Ltd., Toronto.

CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.

CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.

CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited.

CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.

CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.

CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.

CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier

CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.

CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.

CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.

CARTONS, lithographed
Harris Lithographing Co., Toronto.

CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
*Tallman Brass & Metal Co., Hamilton, Ont.
*Wentworth Mfg. Co., Hamilton.

CASTINGS, brass
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.

CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.

CASTINGS, grey iron
*Canadian Rumely Co., Limited, Toronto, Ont.
*Crouse-Hinds Co., Ltd., Toronto.
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.

CASTINGS, malleable iron
*Crouse-Hinds Co., Ltd., Toronto.
*Galt Malleable Iron Co., Ltd., Galt, Ont.

CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.
*Wm. Kennedy & Sons, Ltd., Owen Sound.

CATALOGUE MAKERS
Grip, Ltd., Toronto.

CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor,

CELLBOARD
Adams Cellboard Co., Toronto,

CEMENT GUNS
Steel and Radiation, Ltd., Toronto.

CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.

CENTRIFUGAL PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.

CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.

CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.

CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.

CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.

CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.

CHECKS, swing checks, etc
*Mueller Mfg. Co., Ltd., Sarnia.

CHEMICALS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.

CHEMISTS, INDUSTRIAL
*Milton Hersey Co., Montreal.

CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.

CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.

CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland. Ont.

CLOCKS, TIME
*International Business Machines, Limited, Toronto.

CLOCKS, WATCHMEN'S
*The Bennett & Wright Co., Ltd., Toronto, Ont.

CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.

CLOTHING
John W. Peck & Co., Ltd., Montreal. Que.

CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.

CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.

CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.

CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.

CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.

COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

COBALT OXIDE
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.

COFFEE
S. H. Ewing & Sons, Montreal Que.

COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited Hamilton, Ont.

COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto.

COLLAR BUTTONS
The Arlington Co. of Canada, Ltd., Toronto.

COLLARS
The Standard Shirt Co., Limited. Montreal, Que.

COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.

COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

COLORS
Brandram-Henderson, Limited, Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

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COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd., Toronto.
COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.
CONCRETE COATINGS, PAINTS, ETC.
*Beveridge Paper Co., Ltd., Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
CONDUITS FOR INTERIOR WIRING
*Conduits Company, Ltd., Toronto.
CONDULET BOX FITTINGS
*Crouse-Hinds Co., Ltd., Toronto.
CONDULETS (Marine)
*Crouse-Hinds Co., Ltd., Toronto.
CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal.
CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.
CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland.
*Canadian Allis-Chalmers, Limited, Toronto.
CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
COPPER, SHEETS, PLATES, BARS, RODS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.
COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CORKS
S. H. Ewing & Sons, Montreal, Que.
CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.
CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
Corrugated Paper Box Co., Ltd., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
CORUNDUM, artificial
*D. A. Brebner, Ltd., Toronto.
CORSETS
Dominion Corset Co., Quebec, Que.
COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.
COTTONADES
Hamilton Cotton Co., Hamilton, Ont.
COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.
COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
CRANES
*Northern Crane Works, Walkerville, Ont.
CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.
CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.
CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro. Ont.
CREOSOTED MATERIALS
*The Barrett Co., Ltd., Toronto and Montreal.
CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.
CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.
CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
CUPS, presentation
Standard Silver Co., Toronto.
CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.
CURLED HAIR
*Delany and Pettit, Ltd., Toronto.
CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.
CUTLERY
Standard Silver Co., Toronto.
CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.
DECALCOMANIA TRANSFERS
Decalcomania Co., Ltd., Toronto.
DECK PLUGS (electric marine)
*Crouse-Hinds Co., Ltd., Toronto.
DENIMS
Hamilton Cotton Co., Hamilton.
DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
DESIGNERS
Ontario Engraving Co., Hamilton, Ont.
DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.
DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
DESSICATED VEGETABLES
Grahams Limited, Belleville.
DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.
DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
*John Whitfield Co., Toronto.
DISINFECTING APPARATUS
Spramotor Co., London, Ont.
DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.
DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.
DRESSING, belt.
Sadler & Haworth, Montreal, Que.
DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.
DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILL PRESSES
*Canada Machinery Corporation, Limited, Galt, Ont.
DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS
*John Morrow Screw & Nut Co., Limited. Ingersoll. Ont.
*Pratt & Whitney Co., Dundas.
DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.
DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited. London, Ont.
DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.
DROP HAMMERS
*Canada Machinery Corporation, Limited, Galt, Ont.
DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.
DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.
DYNAMITE
Canadian Explosives, Limited, Montreal, Que.
DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.
EIDERDOWN
Galt Knitting Co., Ltd., Galt.
ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.
ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.
ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELECTRIC LAMPS
Packard Electric Co., Ltd., Toronto.
ELECTRIC PLATE WARE
Roden Bros. Ltd. Toronto.
ELECTRIC BRANDING TOOLS
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
ELECTRIC RAILWAY EQUIPMENT
*Crouse-Hinds Co., Ltd., Toronto.
ELECTRODES, Carbon
Canadian National Carbon Co., Ltd., Toronto.
ELECTROPLATING
*United Brass & Lead, Ltd., Toronto
ELECTRO PLATING
Central Press Agency, Toronto.
ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
ELECTRIC SOLDERING IRON
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.
ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
ELEVATORS
*Jenckes Machine Co., Sherbrooke.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
*The A. B. Ormsby Co., Limited, Toronto.
ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
ELEVATORS, hydraulic and electric
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.
ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.
ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, gas and gasoline
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.
ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.
ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont
ENGINES, Marine, Gasoline and Kerosine
Bruce, Stewart & Co., Ltd., Charlottetown, P.E.I.
ENGINES, oil, gasoline and kerosene
*Gilson Manufacturing Co., Ltd., Guelph.
ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited. Hamilton. Ont.
ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited. Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELEVATORS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
ENGRAVERS
Grip, Limited. Toronto.
Ontario Engraving Co., Hamilton.
ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.
ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa.
ENGRAVING
*J. L. Jones Engraving Company, Toronto.
ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa Limited. Ottawa, Ont.
ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
EVAPORATED APPLES
Grahams Limited, Belleville.
ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal Que.

EXCELSIOR
*Delany & Pettit, Ltd., Toronto.
EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.
EXPLOSIVES, high
Canadian Explosives Ltd., Montreal.
FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.
FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.
FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
FASTENERS, belt
*Sadler & Haworth, Montreal, Que.
FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited Montreal.
FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.
FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.
FENCING, wire
C. H. Johnson & Sons, Limited, Montreal, Que.
FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull, Que.
FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.
FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope.
FILING CABINETS
*Office Specialty Co., Newmarket
FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILTER PAPERS
*Beveridge Paper Co., Limited Montreal.
FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.
FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont
FIRE BRICK
Dominion Fire Brick and Clay Products, Ltd., Moose Jaw
FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal
FIRE BRICK AND CLAY
The Dominion Fire Brick and Clay Products, Ltd., Moose Jaw, Sask.
FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal
FIRECLAY
*Jas. W. Foley & Co., St. John, N.B.
FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co. Limited, London, Ont.
FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.
FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.
FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.
FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.
FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.
FITTINGS, steam
Warden King, Ltd., Montreal, Que.
FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.
FLAGS
*Scythes & Co., Limited, Toronto.
FLEXIBLE COUPLINGS
*Canadian Bond Hanger & Coupling Co. Alexandria, Ont.
FLOODLIGHTS (electric)
*Crouse-Hinds Co., Ltd., Toronto.
FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.
FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.
FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.
FORGINGS
Canada Forge Co., Ltd., Welland.
*The Steel Co. of Canada, Limited Hamilton, Ont.
FORGINGS, drop
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*Dominion Forge and Stamping Co., Walkerville, Ont.
FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.
FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.
FOUNTAINS, drinking
*Mueller Mfg. Co., Ltd., Sarnia.
FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
FUEL
Standard Fuel Co., Toronto.
FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.
FUR GOODS
John W. Peck & Co., Limited. Montreal, Que.
FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.
FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.
FURNITURE, hall
The George McLagan Furniture Co., Limited. Stratford, Ont.
FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.
FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont.
FUSE BOXES
*Crouse-Hinds Co., Ltd., Toronto.
FUSE PLUGS AND FUSES, refillable
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
FUSES
*Economy Fuse and Mfg. Co., Montreal.
GALVANIZED IRON
*A. C. Leslie & Co., Montreal.
GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
GASOLINE
*The Imperial Oil Co., Limited, Toronto.
GAUGES
*Brown Engineering Corporation, Toronto.
*John Whitfield Co., Toronto.
GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.
GELATINE
Canada Gelatine Co., Ltd., Brantford.
GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.
GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.
GILDING METAL.
*Dominion Copper Products Company, Limited, Montreal.
GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.
GLASSWARE, cut
Roden Bros., Ltd., Toronto.
GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.
GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.
GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.
GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.
GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.
GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.
GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.
GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.
GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited, New Toronto.
GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.
GUARDS (Conduiet)
*Crouse-Hinds Co., Ltd., Toronto.
GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.
GUY RODS
*Crouse-Hinds Co., Ltd., Toronto.
GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.
GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
HACK SAW BLADES and FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W. Fearman Co., Ltd., Hamilton, Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
Wilson Bros. Limited, Collingwood, Ont
HARDWOOD INTERIOR FINISH
Wilson Bros., Ltd., Collingwood, Ont.
HARDWOOD VENEER DOORS TO DETAIL
Wilson Bros., Ltd., Collingwood, Ont.
HARNESS
Lamontagne Ltd., Montreal, Que.
HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEADLIGHT (electric)
*Crouse-Hinds Co., Ltd., Toronto.

HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.
HEMLOCK, union and oak sole
Breithaupt Leather Co., Ltd., Kitchener, Ont.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto.
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited, Toronto.
ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal, Que.
INCUBATORS & BROODERS
Lee Mfg. Co., Ltd., Pembroke, Ont
INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited Windsor, Ont.
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited Montreal.
INSULATORS
*Crouse-Hinds Co., Ltd., Toronto.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St. Johns, Que.
IRON
*Nova Scotia Steel & Coal Co., Ltd New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth N.S.
IRON AND STEEL BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited Hamilton, Ont.

IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co. Hamilton, Ont.
IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.
JACKS
Globe Engineering Co., Ltd., Hamilton
JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.
JOINTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal, Que.
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
*Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
*The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
*The Peter Hay Knife Co., Limited, Galt Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Co., Toronto
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.
LAMP GLOBES
*Crouse-Hinds Co., Ltd., Toronto.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.

LATHES
*Canada Machinery Corporation, Limited, Galt, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.
LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
*United Brass & Lead, Ltd., Toronto
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock, union and oak sole
The Breithaupt Leather Co., Ltd., Kitchener, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.
LIGHTS (marine, side and port)
*Crouse-Hinds Co., Ltd., Toronto.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Co., Toronto.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
*United Brass & Lead, Ltd., Toronto
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited. Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co. Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.

LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.
LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
Henry Disston and Sons, Toronto
MACHINE TOOLS
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special and repairs
*Canadian Rumely Co., Limited, Toronto, Ont.
MACHINERY AND UTENSILS FOR BAKERS
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR CANDY
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR ICE CREAM
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited, Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland.
*Northern Crane Works, Limited, Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, punching and shearing.
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, railroad and car-shop
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton.
*Canada Machinery Corporation, Limited, Galt, Ont.

MACHINERY, special
Bawden Machine Co., Limited, Toronto.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Canada Machinery Corporation, Limited, Galt, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WORK, special and repairs
*Canadian Rumely Co., Ltd., Toronto, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILINGS
*The Pedlar People Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The Pedlar People Limited, Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People, Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd. Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
MITTS AND GLOVES (Indian, tanned deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto
MIXERS, chocolate, dough and paint
Fletcher Mfg. Co., Ltd., Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que
MORTISERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd. Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited Toronto.
*Jones & Moore Electric Co., Ltd. Toronto.
*Canadian Crocker-Wheeler Co. Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited Toronto.
*Jones & Moore Electric Co., Ltd. Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
MOULDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited Hamilton, Ont.
NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
NAILS, wire
Parmenter and Bulloch Co., Ltd. Gananoque, Ont.
The Graham Nail Works, Toronto
NAPHTHA
*The Imperial Oil Co., Limited Toronto.
NICKEL OXIDE
Coniagas Reduction Co., Limited St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co. Limited, Ingersoll, Ont.
*The National Acme Mfg. Co. Montreal, Que.
*The Steel Co. of Canada, Limited Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.
OFFICE DESKS
*Goderich Organ Co., Goderich, Ont.
OFFICE EQUIPMENT
*Office Specialty Co., Newmarket, Ont.
OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal.
Sherwin-Williams Co. of Canada, Limited. Montreal, Que.
OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.
OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.
OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton.
*Imperial Oil Co., Toronto.
OILS (Petroleum products)
*British American Oil Co., Limited. Toronto.
*The Imperial Oil Co., Limited, Toronto.
OILS, road
*The Barrett Co., Ltd., Toronto and Montreal.
OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited. Montreal, Que.
ORGANS
*Goderich Organ Co., Goderich. Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont
ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.
ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.
OVERALLS
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.
OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.
OVERHEAD RUNWAYS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Richards-Wilcox Canadian Co., Limited, London, Ont.
OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.
OXYGEN
*L'Air Liquide Society, Montreal.
PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.
PACKING BOXES
Barchard & Co., Limited, Toronto.
PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.
PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.
PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.
PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.
PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.
PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.
PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
PANELBOARDS
*Crouse-Hinds Co., Ltd., Toronto.
PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.
PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.
PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited. Toronto.
PAPER, coated, book and label
*Provincial Paper Mills, Limited. Georgetown, Ont.
PAPER, coated box board
*Provincial Paper Mills, Limited. Georgetown, Ont.
PAPER, coated cover
*Provincial Paper Mills, Limited. Georgetown, Ont.
PAPER, envelope
Provincial Paper Mills Limited. Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, enamelled blotting
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited, Montreal.
PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Stauntons, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
Howard Smith Paper Mills, Limited, Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.
PATENT LITIGATION
Ridout and Maybee, Toronto.
PAY ROLL AUDITS
*International Business Machines, Limited, Toronto.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co., Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.
PIANO KEYS
The Otto Higel Co., Ltd., Toronto.
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto.
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.
PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PINE DOORS, SASH, MOULDINGS, ETC.
Wilson Bros., Limited, Collingwood, Ont.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.

*For Display Advertisement see Index, Pages 1-2

PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Authes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUGS
*Crouse-Hinds Co., Ltd., Toronto.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co. Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont.
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
*William R. Perrin, Ltd., Toronto.
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton, Ont.
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSES, veneer
*Canada Machinery Corporation, Limited, Galt, Ont.
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULLEYS, wood split.
*Bernard Industrial Co., Fortierville, P.Q.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
Riordan Sales Co., Ltd., Montreal.
PULP, Unbleached Sulphite.
Riordan Sales Co., Ltd., Montreal.
PULP, sulphate and sulphite.
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited Toronto.
*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London, Ont.
PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
John McDougall, Caledonian Iron Works Co., Ltd., Montreal, Que.
PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.
PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.
RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.
RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.
*United Brass & Lead, Ltd., Toronto
RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.
RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.
RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.
RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.
READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.
REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.
RECEPTACLES
*Crouse-Hinds Co., Ltd., Toronto.
REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.
REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.
REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.
REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.
REINFORCEMENT BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.
RINGS, gold
Caron Bros., Montreal, Que.
RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ROLLING STEEL DOORS
*A. B. Ormsby Co., Ltd., Toronto.
ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.
ROOFING, metal
*The A. B. Ormsby Co., Limited, Toronto.
ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
ROOFINGS, plastic and liquid
*Beveridge Paper Co., Limited, Montreal.
ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.
ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.
RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.
RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.
RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.
RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.
SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.
SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.
SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal.
SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SANDPAPER
*Delany and Pettit, Ltd., Toronto.
SASH CORD, cotton
Hamilton Cotton Co., Hamilton,
SALT
Canadian Salt Co., Ltd., Windsor,
SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.
SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.
SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.
SAWS, cross-cut and band
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWS, circular mill
Shurly & Deitrich, Galt, Ont.
SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.
SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.
SAWS, rip
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.
SCALES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton,
SCALES, counter
The Gurney Scale Co., Hamilton,
SCALES, railway track, etc.
The Gurney Scale Co., Hamilton,
SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris,
Ham & Nott Co., Ltd., Brantford,
SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
*United Brass & Lead, Ltd., Toronto
SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.
SECURITIES, engraved
American Bank Note Co., Ottawa,
SERGES
Rosamond Woollen Co., Almonte,
SHAFTING
Canada Forge Co., Ltd., Welland,
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford.

SHAPERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

SHEATHING
*The Barrett Co., Ltd., Toronto and Montreal.

SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.

SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.
*The A. B. Ormsby Co., Limited, Toronto.

SHEETS, ETC.
*Tallhan Brass & Metal Co., Hamilton, Ont.

SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited,

SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.

SHINGLE SAWS
*E C. Atkins & Co., Inc., Hamilton, Ont

SHIP BUILDERS
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.

SHIRTS
John W. Peck & Co., Ltd., Montreal, Que.

SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.

SHOE PEGWOOD
O. Chalifour, Quebec, Que.

SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.

SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.

SHOOKS
Barchard & Co., Ltd., Montreal.

SIGNAL CELLS
Canadian National Carbon Co., Ltd., Toronto.

SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto

SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.

SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.

SILVERWARE, sterling
Roden Bros., Limited, Toronto.

SINKS, enamelled
Amherst Foundry Co., Limited Amherst, N.S.

SKATES, figure
Canada Cycle and Motor Co., Ltd.

SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd. Toronto.

SKATES, hockey
Canada Cycle and Motor Co., Ltd. Toronto.

SKATES, ice
Canada Cycle and Motor Co., Ltd. Toronto.

SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited Oshawa.

SLEIGHS
Tudhope-Anderson Co., Limited. Orillia, Ont.

SLIPPERS
Ames-Holden-McCready, Ltd., Montreal Que.

SLOTTERS
*Canada Machinery Corporation, Limited, Galt, Ont.

SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.

SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

SOAPS
J. Barsalou & Co., Ltd., Montreal.

SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.

SOCKETS
*Crouse-Hinds Co., Ltd., Toronto.

SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd. Toronto

SODA WATER FOUNTAINS AND ACCESSORIES
Fletcher Mfg. Co., Ltd., Toronto.

SOIL PIPE
Anthes Foundry, Ltd., Toronto.

SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

SOLDER, silver
Geo. H. Lees & Co., Hamilton.

SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.

SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton Ont.

SNOWSHOES
Holt Renfrew, Ltd. Quebec, Que.

SPECIAL MACHINERY
Globe Engineering Co., Ltd., Hamilton

SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.

SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd. Galt, Ont.

SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.

SPIRITS
*Hiram Walker & Sons, Limited, Walkerville, Ont.

SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.

SPRAYERS
Spramotor Co., London, Ont.

SPRING COTTERS
*Richards-Wilcox Canadian Co. Limited, London, Ont.

SPRINGS
*Canadian Steel Foundries, Ltd. Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy, Mantell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.

SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.

STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.

STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.

STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.
*Wentworth Mfg. Co., Hamilton.

STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STAMP MILLS
*Jenckes Machine Co., Sherbrooke.

STATIONERY, office
Harris Lithographing Co., Toronto.

STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland.

STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.

STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.

STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
*Burlington Steel Co., Ltd., Hamilton, Ont.

STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited Hamilton.

STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.

STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.

STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton

STEEL DOORS, rolling
*The A. B. Ormsby Co., Limited, Toronto.

STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

STEEL PLATE WORK
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Toronto Iron Works, Ltd., Toronto.

STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton

STEEL SASH
Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.

STEEL SHELVING
*Dennis Wire & Iron Works Co., London.

STEEL WIRE RODS
*The Steel Company of Canada, Limited Hamilton.

STELLITE
*Deloro Smelting & Refining Co., Ltd., Deloro and Toronto.

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STEREOTYPING
Central Press Agency, Toronto

STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville Ont.

STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

STONE
The Hagersville Contracting Co., Hagersville, Ont.

STONEWARE
*Jas. W. Foley & Co., St. John, N.B.

STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.

STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited. Orillia, Ont.

STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.

STOVES AND RANGES
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.

STRAWS, paper drinking
Fletcher Mfg. Co., Ltd., Toronto.

STREET LIGHTING FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.

STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.

SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.

SURFACERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.
*Crouse-Hinds Co., Ltd., Toronto.

SWITCHES
*Crouse-Hinds Co., Ltd., Toronto.

SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.

SWITCH STANDS
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton,

TANKS
*Toronto Iron Works, Ltd., Toronto.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.

TANKS, steel storage
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.

TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.

TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.

TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited. Montreal, Que.

TENTS
Turner, J. J., & Sons. Peterboro,
*Scythes & Co., Ltd., Toronto.

TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.

TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.

TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.

THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.

TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TIME RECORDERS
*International Business Machines, Limited, Toronto.

TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd

*For Display Advertisement see Index, Pages 1-2

TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton.
TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton.
TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.
TRACTORS, kerosene and gasoline
*Gilson Manufacturing Co., Ltd., Guelph.
TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.
TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.
TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.
TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.
TRUCKS
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton.
*Northern Crane Works, Limited, Walkerville.
TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.
TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.
TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.
TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.
TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.
TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
TUBING, Fibre
*Beveridge Paper Co., Limited Montreal.
TUBING, gold and silver
Canadian Seamless Wire Co., Toronto.
TUBS, Ice cream
Fletcher Mfg. Co., Ltd., Toronto.
TUMBLERS, foundry
*Northern Crane Works, Limited Walkerville.
*Smart-Turner Machine Co., Ltd. Hamilton, Ont.
TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited. St. Catharines.
TURBINE PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
TURPENTINE
*Brown Corporation, La Tuque, Que.
TWEEDS
Rosamond Woollen Co., Almonte, Ont.
TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.
TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.
TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada. Dundas, Ont.
*The Wilt Twist Drill Co., Ltd. Walkerville, Ont
UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.
UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
UNIONS
*Dart Union Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.
VALVES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
T. McAvity & Sons, Ltd., St. John, N.B.
*Penberthy Injector Co., Ltd., Windsor.
VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Mueller Mfg. Co., Ltd., Sarnia.
*Penberthy Injector Co., Ltd., Windsor.
*United Brass & Lead, Ltd., Toronto
James Morrison Brass Mfg. Co., Limited, Toronto.
VALVES, pressure reducing
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, regrinding globe, angle, cross checks, swing checks
*Mueller Mfg. Co., Ltd., Sarnia.
Penberthy Injector Co., Ltd., Windsor, Ont.
VALVES, regulating
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
VARNISHES
*Ault & Wiborg Co of Canada, Ltd. Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.
VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd Galt
J. & J. Taylor, Ltd., Toronto.
VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.
VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto
VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited. Oshawa.
VOLTMETERS AND AMMETERS
*Crouse-Hinds Co., Ltd., Toronto.
WAGONS
TudhopeAnderson Co., Ltd., Orillia
WALL COPING
Standard Clay Products, Ltd., St Johns, Que.
WASHERS
*The Steel Company of Canada, Limited, Hamilton.
*United Brass & Lead, Ltd., Toronto
WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.
WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.
WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.
WASTES, wool and cotton
Factory Waste and Metal Co. Montreal, Que.
*Scythes & Co., Ltd., Toronto.
WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited Montreal.
*The Barrett Co., Ltd., Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont
WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal, Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.
WHEELS, water (impulse type)
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia, Ont.
WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont
WHITE LEAD
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WINDOW SHADES
Daly & Morin, Montreal, Que.
WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.
WIRE BALE TIES
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.
WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, insulated electric
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE, weatherproof
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd, Hamilton.
WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto, Iron and Brass Goods Works Co., Ltd., Toronto.
WIRING DEVICES
*Crouse-Hinds Co., Ltd., Toronto.
WOOD
Standard Fuel Co., Toronto.
WOOD BORERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
WOOD PRINTERS
Barchard & Co., Ltd., Toronto.
WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi, Chicoutimi, Que.
WOOD SHOP, general work
*Canadian Rumely Co., Limited, Toronto, Ont.
WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
WOOD STAVE PIPE
T. A. Morrison & Co., Montreal.
WOOL
*H. V. Andrews, Toronto.
WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte, Ont.
WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada, Ltd., Niagara Falls, Ont.
WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.
WROUGHT IRON PIPE
*The Steel Compony of Canada. Ltd., Hamilton.
WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.
YARNS, cotton
Hamilton Cotton Co., Hamilton, Ont.
ZINC, electrical
*The Canada Metal Co., Toronto.

*For Display Advertisement see Index, Pages 1-2

TRY US FOR
BRASS CASTINGS
THE BOOTH-COULTER COPPER & BRASS COMPANY, LTD.
115-121 SUMACH STREET - - - TORONTO, CANADA

Vol. XIX., No. 8 TORONTO, DECEMBER, 1918 $2.00 Per Year

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Table Condiments and Bicycles

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J. J. GIBBONS, LIMITED

General Advertising Agents

MONTREAL
Cables—Gibjay, Toronto

TORONTO

WINNIPEG
Codes—ABC 5th Edition

PUBLISHED BY THE CANADIAN MANUFACTURERS ASSOCIATION INCORPORATED.
HEAD OFFICE TORONTO · BRANCH OFFICES, MONTREAL, HAMILTON, WINNIPEG, VANCOUVER, HALIFAX, QUEBEC.

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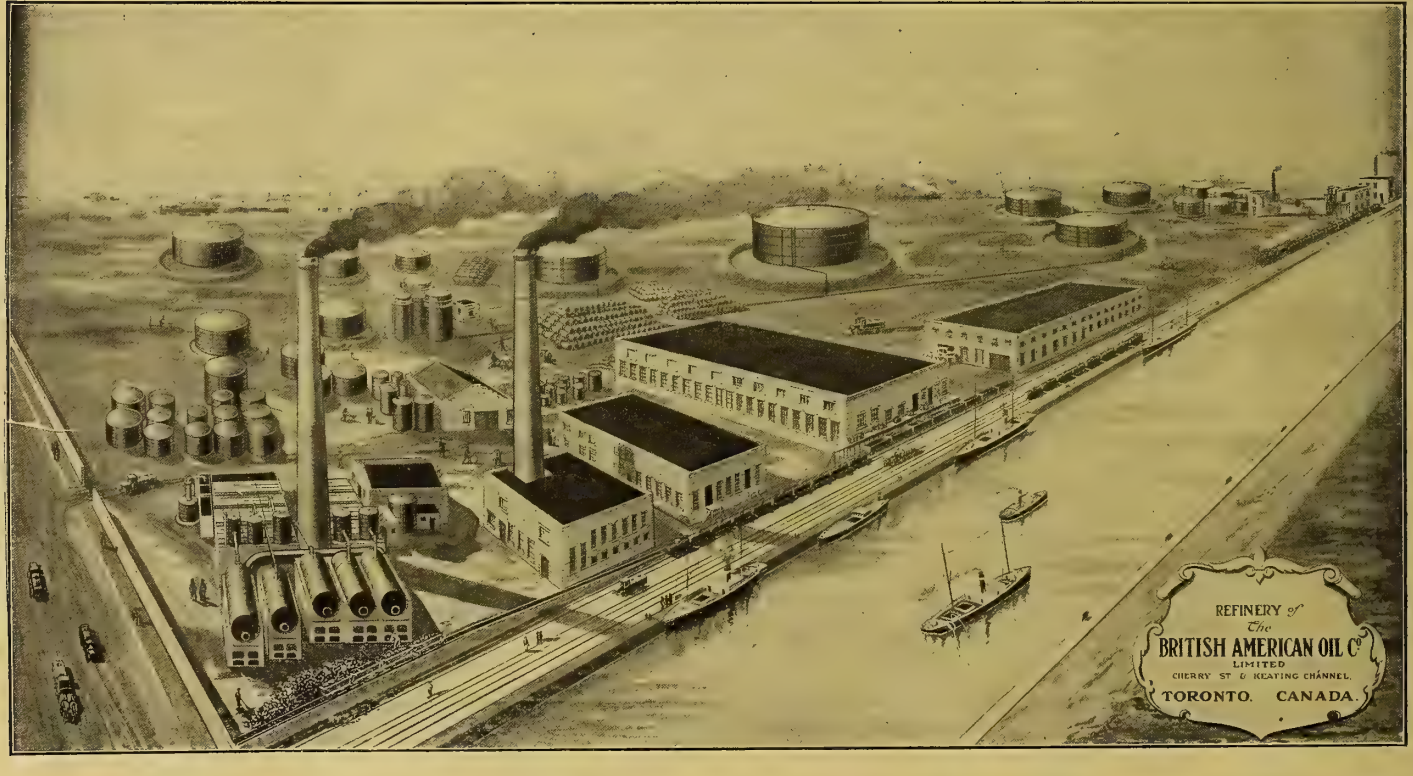
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THE BRITISH AMERICAN OIL CO., LIMITED



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Union Pipe Couplings that are not or do not stay tight without attention spell ***waste*** with capital letters. You have to have Unions, you can have them right if they are Dart Unions for Dart Unions stay tight.

It's more than worth your while to know by experience their real worth. Your jobber sells them.

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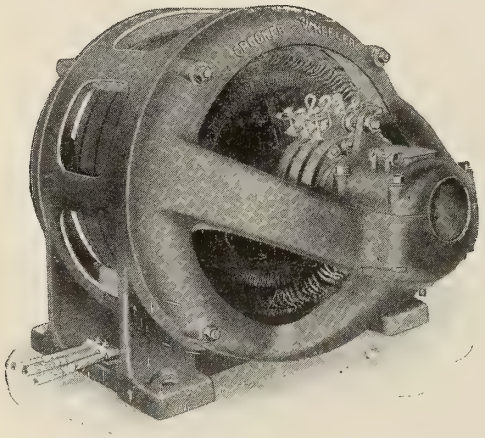
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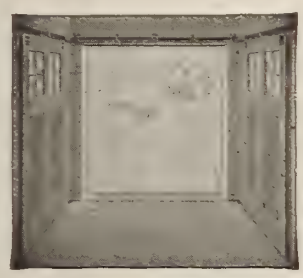


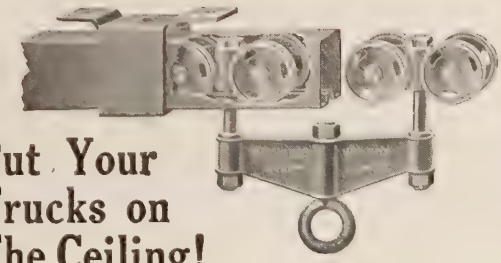
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"A hanger for any door that slides"

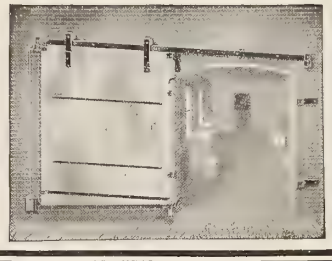
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A little device with a big job ahead of it

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Those who know the possibilities for coal-waste in steam heating systems—and those who ask for authoritative advice on the subject—realize that radiators choked with air and water are guilty in the highest degree.

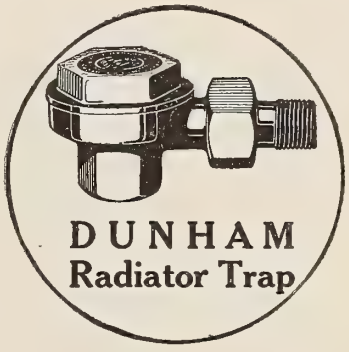
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The DUNHAM HEATING SERVICE

We believe in FACTS and will gladly present them to you in a most convincing manner.

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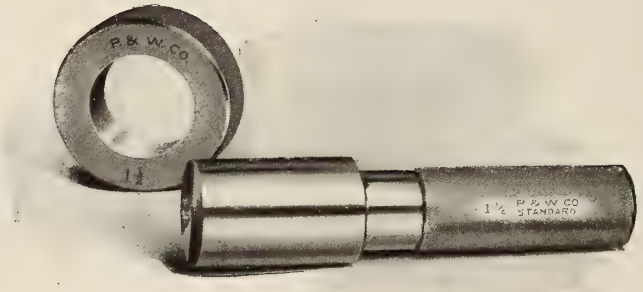
It is screwed into the bottom of the radiator, requires no attention, makes no noise, cannot leak steam or water. By permitting the steam to fill the entire radiator it gets more *useful* heat from the coal. Can be applied also to existing steam heating system.

It comprises a body, a cover and a thermostatic disc which is secured in the cover. There are no loose parts—no sliding contacts—nothing to gum up—nothing to obstruct the valve opening. It is made with special roughing-in measurements for the replacing of imitating devices.

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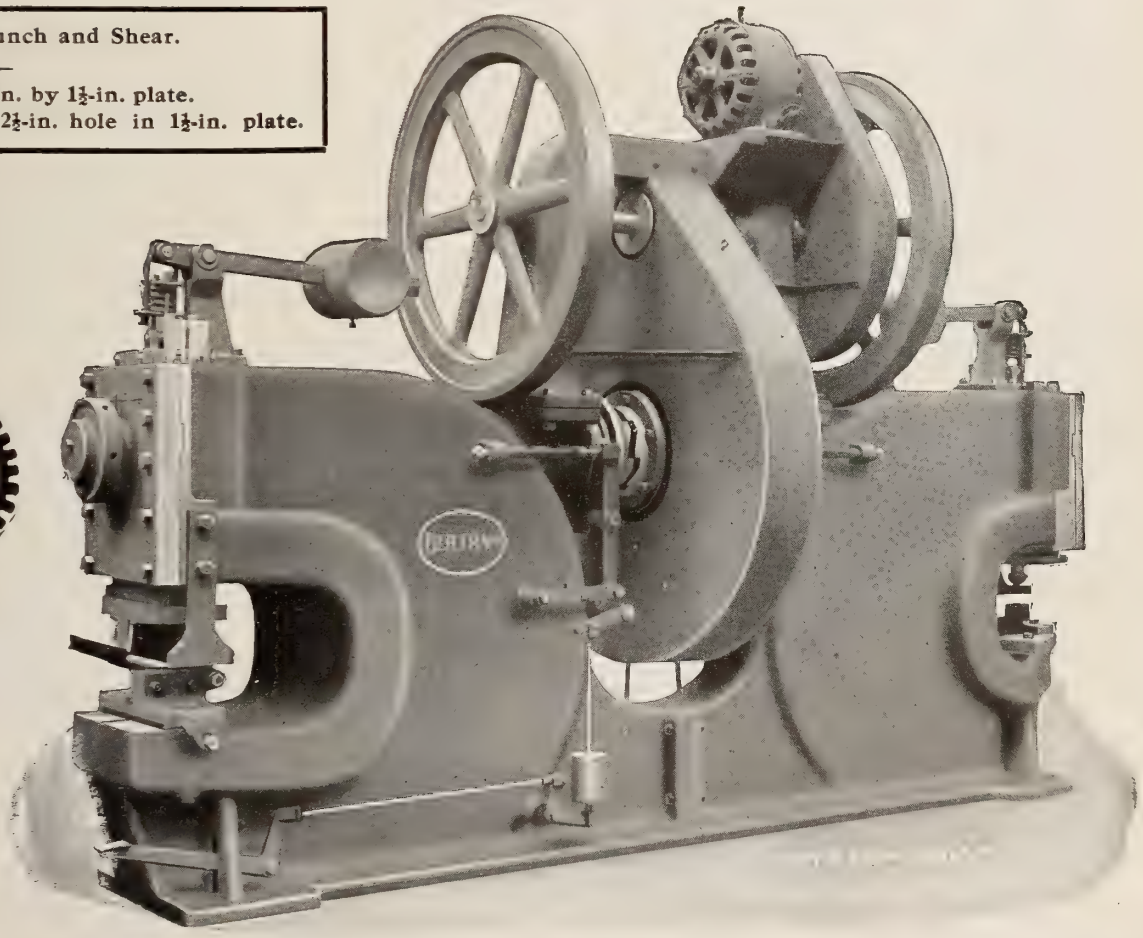
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THE JOHN BERTRAM & SONS CO., Limited

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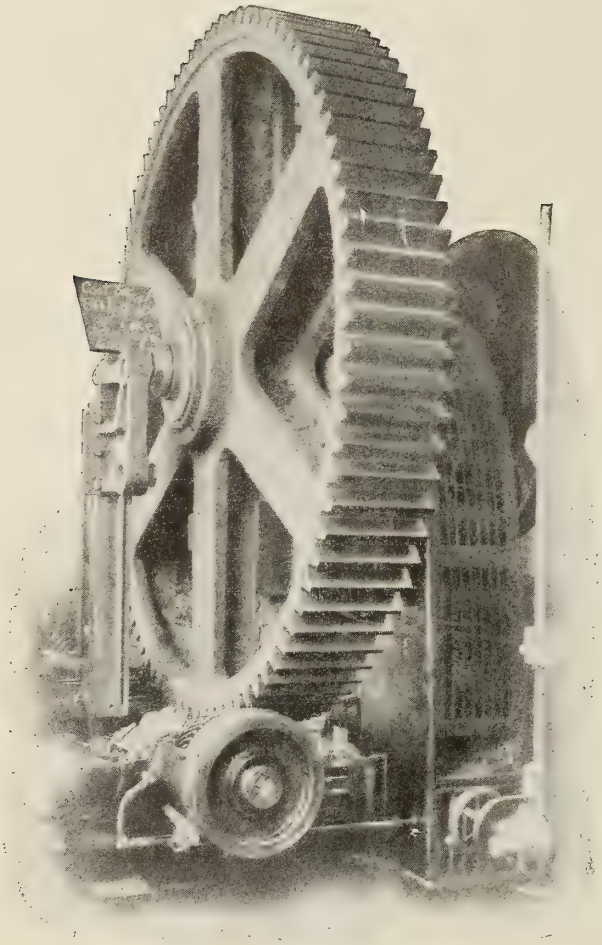
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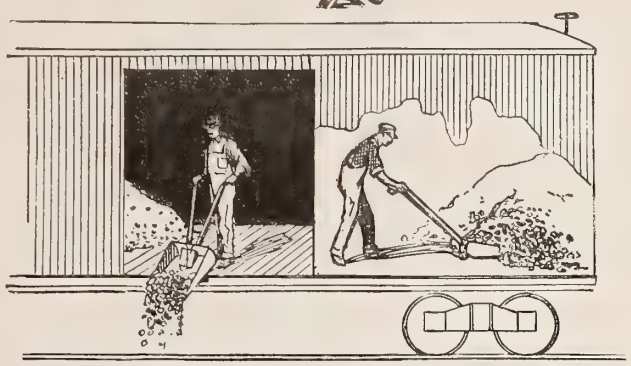
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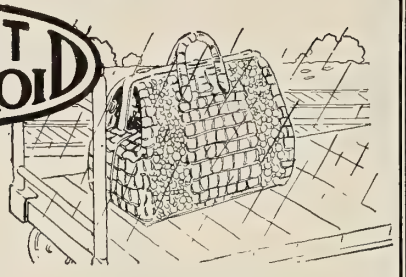


This is a FORWARD DUMP Wheelbarrow. It carries 300 lbs. of coal and is designed so that the load is evenly carried over the wheel. As we write this, one customer's order reaches us for one dozen.

THE GEO. B. MEADOWS
TORONTO WIRE, IRON & BRASS WORKS CO
LIMITED
TORONTO ---------- CANADA

Craftsman Quality

DU PONT FABRIKOID



FOR

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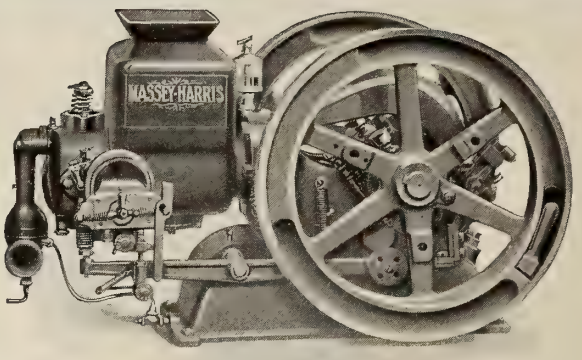
Fabrikoid is made in exact imitation of first-class leather---tough, durable, weather and stain-proof---and is very handsome in appearance.

In points of wear, appearance and service, Fabrikoid is superior to luggage made of split leather and has the advantage of being fully guaranteed.

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Du Pont Fabrikoid Company

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MASSEY-HARRIS ENGINES are good all the way through

¶ Every detail has been worked out with the greatest care—nothing has been slighted, either in the design or construction, and as a result they have won an enviable reputation for reliability and efficiency.

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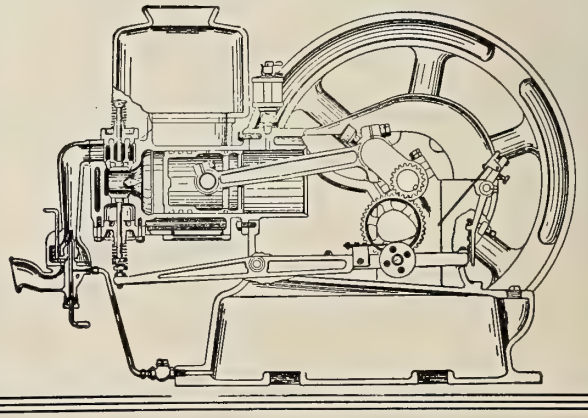
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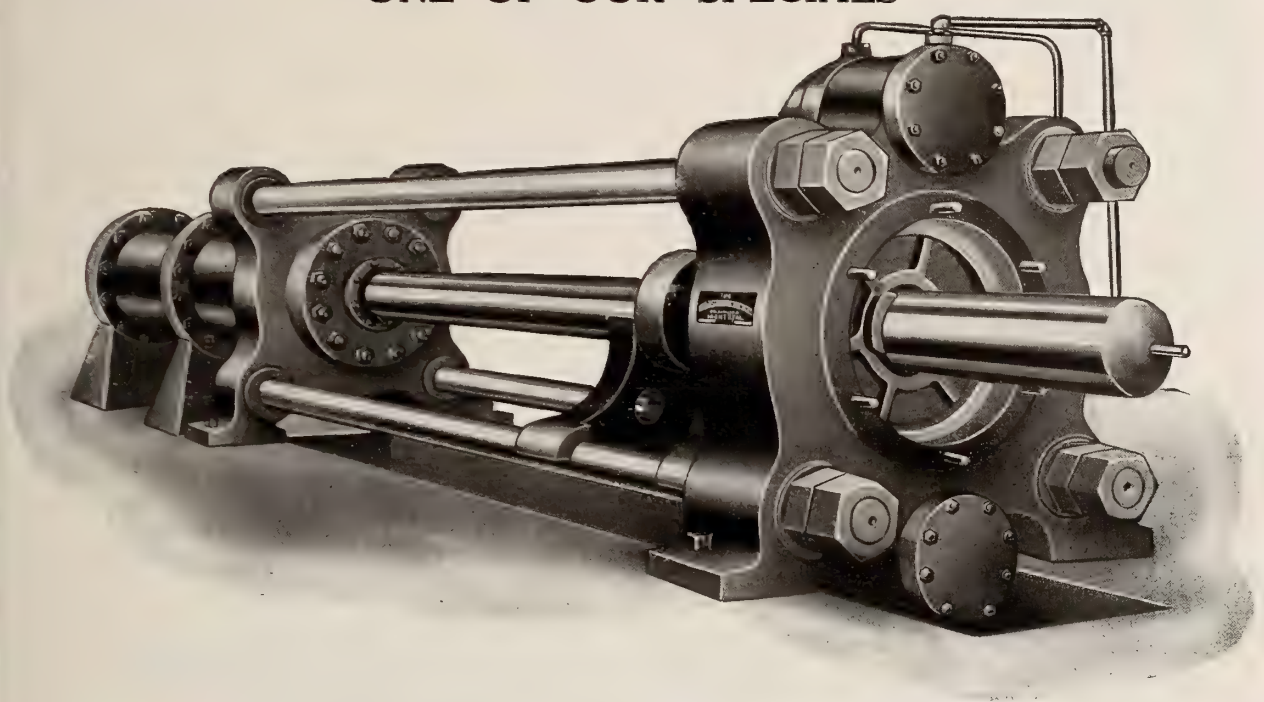
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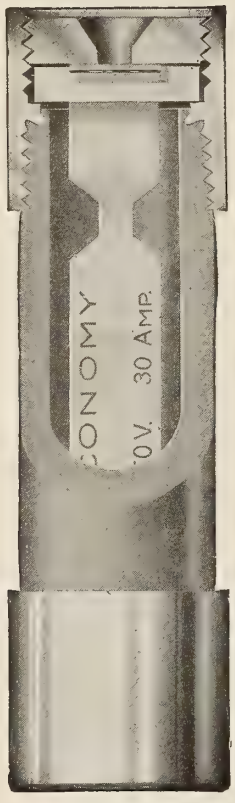
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Cut Annual Fuse Maintenance Cost 80%

Economy "Drop Out" Renewal Links are responsible for this saving.

A "Drop Out" Renewal Link restores a blown Economy Fuse to its original efficiency.

A sustained arc is impossible.

It's the work of a moment for even a novice to replace the link and renew the fuse.

First in its field—first in efficiency.

Order from your dealer. Write for catalogue 39

ECONOMY FUSE & MFG. CO.
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UNITY BUILDING - - MONTREAL

Manufacturers in Canada of S. & C. High Potential Fuses to 150,000 volts.



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McKinnon Quality Malleable Iron

(1) Quality comes first.
(2) All Pig Iron is analyzed before it goes into McKINNON MALLEABLES.
(3) A Chemical analysis is made from each heat.
(4) We know ***what is in*** McKINNON MALLEABLES.
(5) Tests are also made for ***Strength*** and ***Toughness.***

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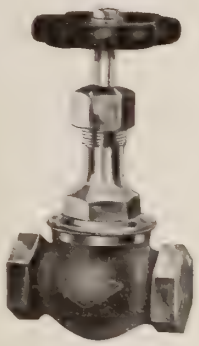


Fig. 106



Factory and Head Office of
JENKINS BROS. LIMITED
Montreal, Canada



Fig. 141

Where plants are scientifically operated, valve value is measured by service rendered, and by yearly ***lack*** of up-keep cost.

If valves break down before other items of equipment, an injustice is done to the entire plant; because valves should last as long as good plant equipment. Good valves do.

Consider—40 per cent. of the Nation's Coal Pile is lost each year by power plants, from their coal investment through poor steam transmission, and from unnecessary labor costs.

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SUCTION DREDGES

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First Pressure Castor Oil

Exceptional Quality

Can Give Prompt Delivery

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Dodge Wood-Split Pulleys have sufficient qualities of their own to justify their use at any time in preference to metal pulleys.

Because of greater adhesion they provide a better belt surface, consequently, there is less belt slippage. They are lighter, hence there is less weight friction. Both of these qualities prevent waste of power. They also cost less to buy than metal pulleys.

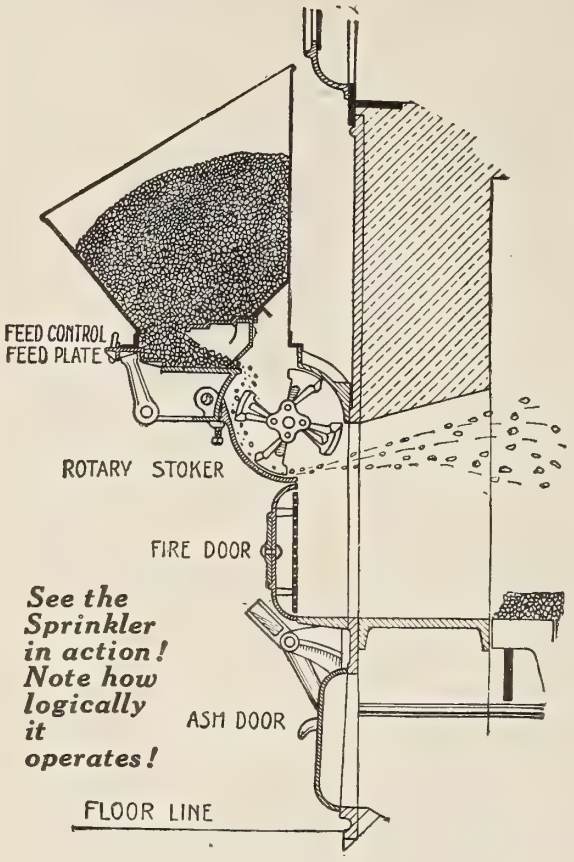
And, you can get Dodge Wood-Split Pulleys when you order them—No waiting—No delays.

We ship in all sizes from 4-inch diameters up to 6-feet diameters on the day orders are received.

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DODGE
WOOD SPLIT PULLEYS

Galt Sprinkler Stoker



See the Sprinkler in action! Note how logically it operates!

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ROYAL BANK BUILDING, Toronto
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A SUMMARY OF WHAT IT MEANS TO YOUR PLANT

1. Effects a saving in coal from 10% to 20%.
2. Effects a saving in labor from 25% to 50%.
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4. Gives smokeless combustion.
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7. Burns the fuel completely to the finest ash.
8. Operates for years without need of repairs.

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Canada



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Reading from right-hand corner and down left side

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DEEP DRAWING QUALITY
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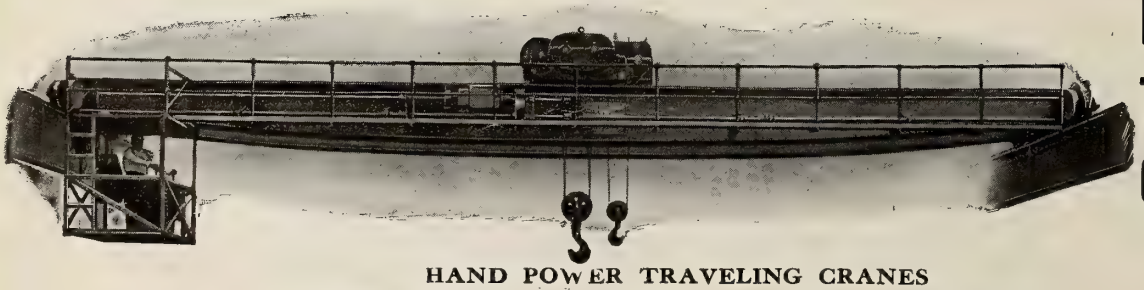
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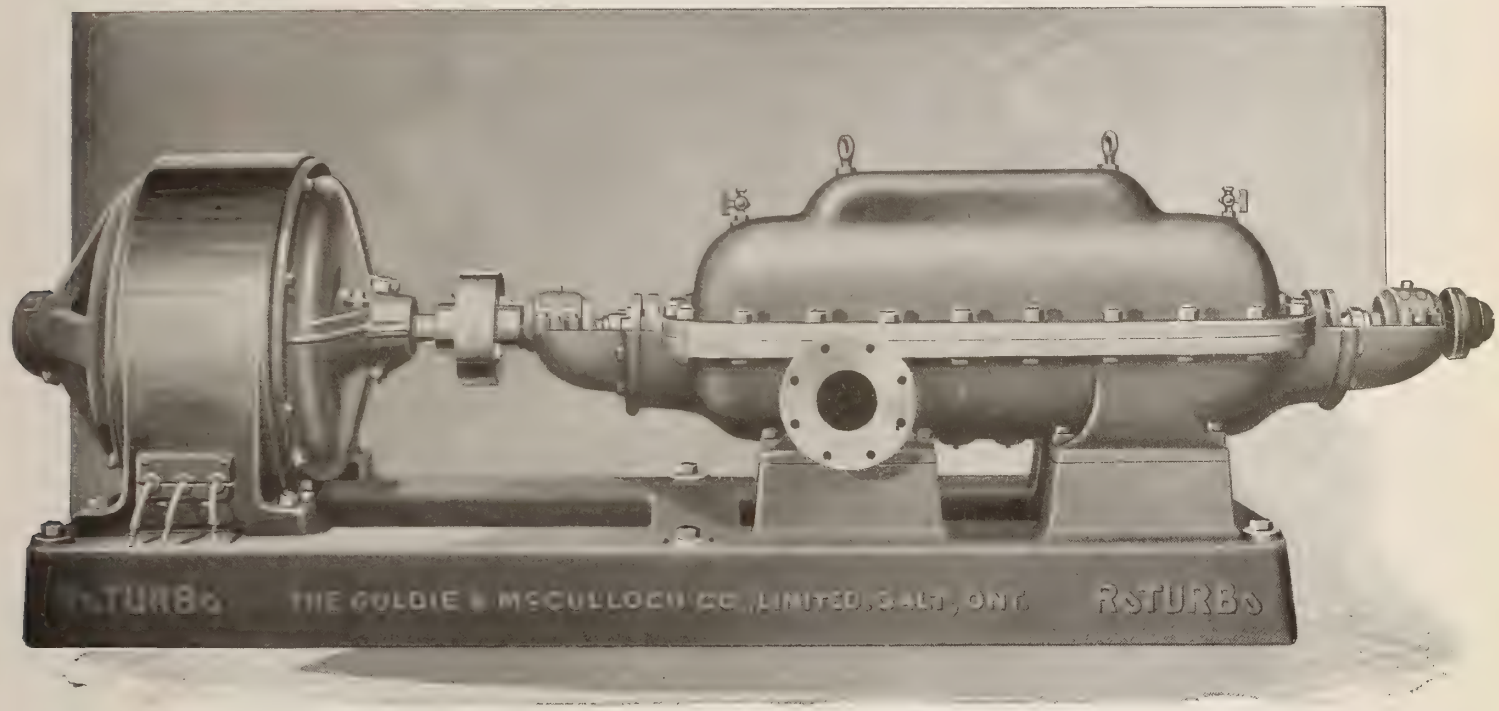
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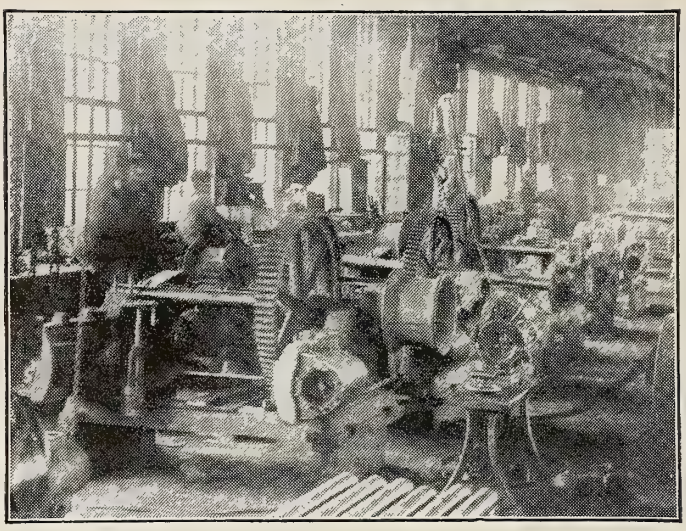
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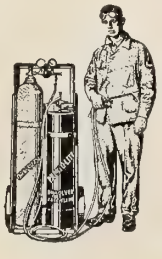
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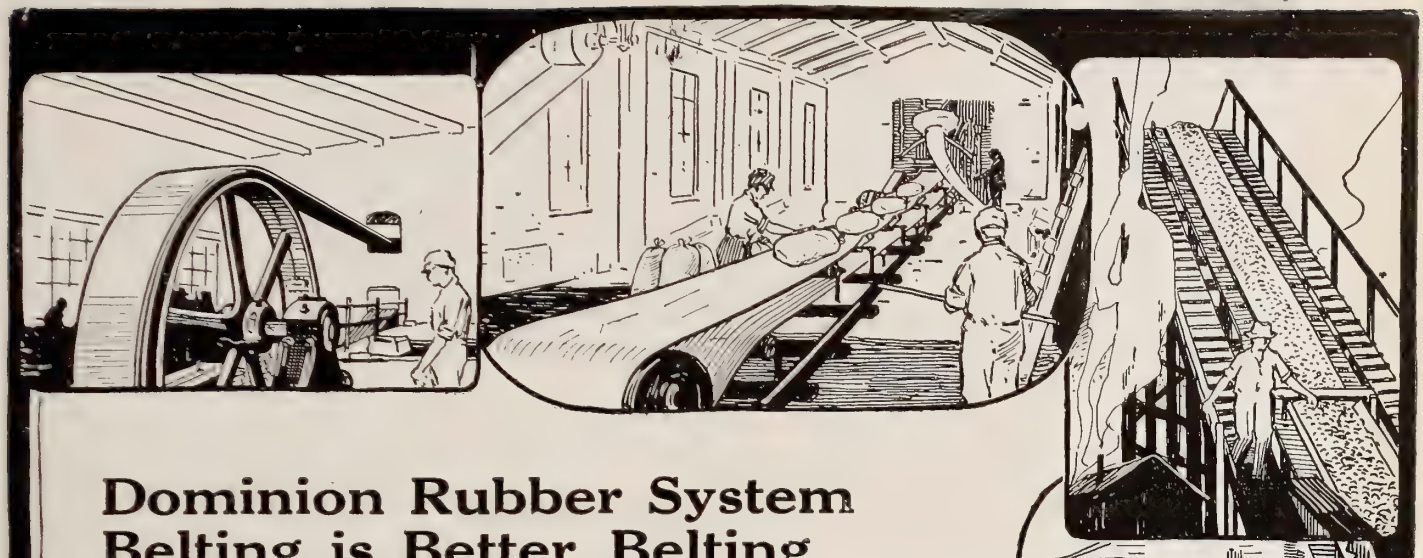
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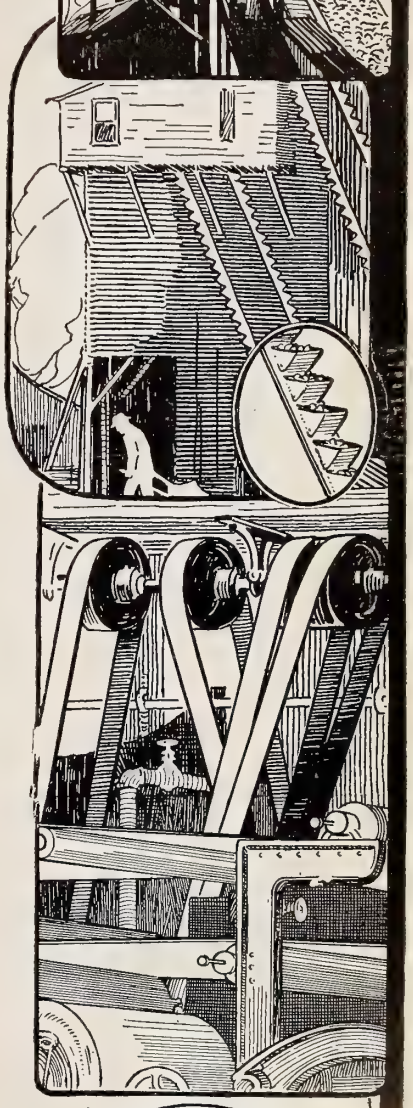


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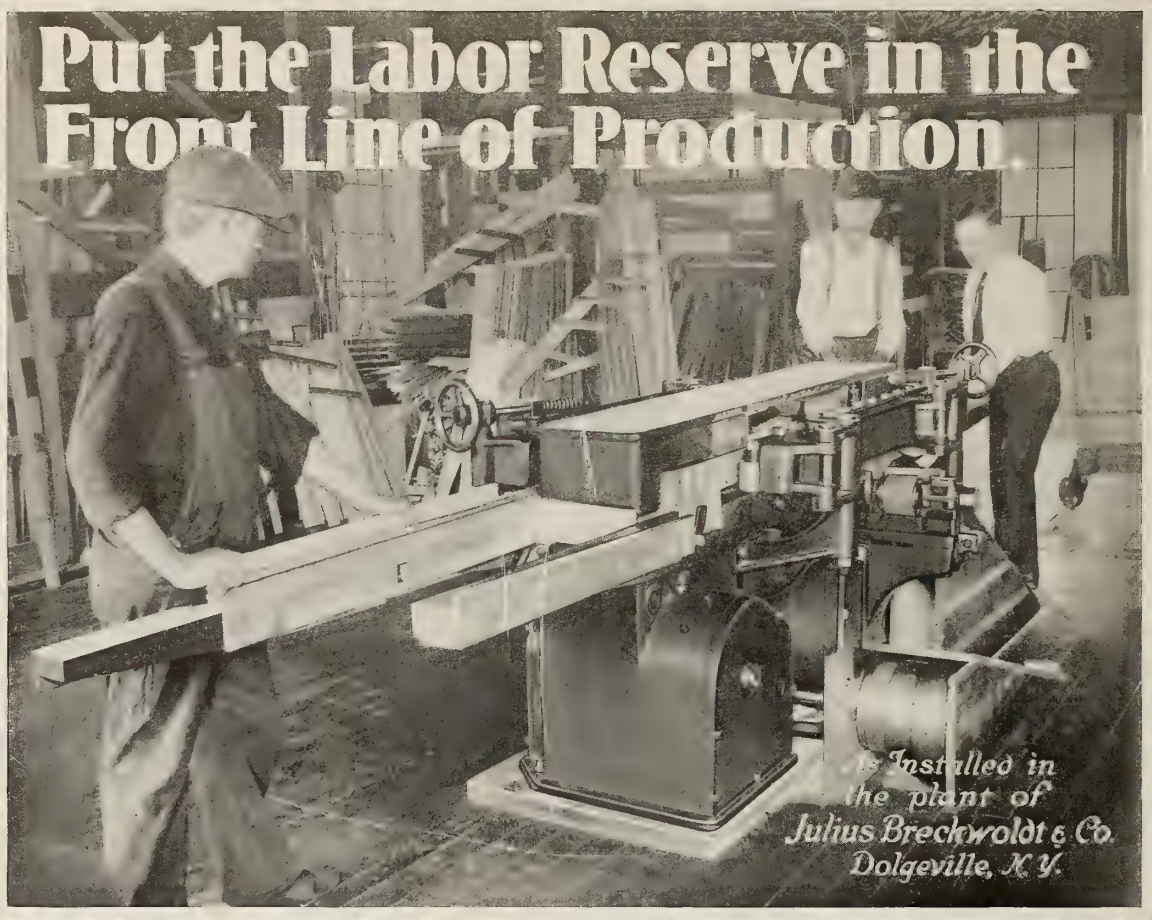
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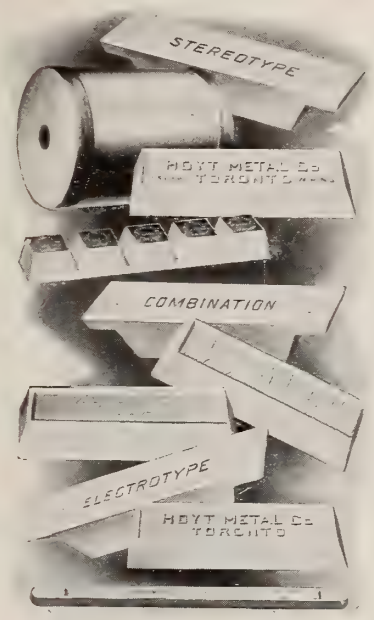
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1....	50	3	750	550	25	Yes	Can. Gen. Elec.
1....	60	3	750	550	25	Yes	Crocker Wheeler
2....	50	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	C.G.E.
1....	10	3	1500	220	25	Yes	T.H.E.
1....	3	3	1500	220	25	Yes	Westinghouse CCL
1....	½	1	1800	110	60	No	Fort Wayne
1....	¼	1	1800	110	60	No	Westinghouse
1....	¼	1	1800	110	60	No	Fisher
1....	40	2	900	220	60	Yes	Fuller Wenstrom
1....	15	2	1800	220	60	No	T.H.E.
2....	5	2 or 3	1800	...	60	No	West. CCL rewound
2....	1	2 or 3	1800	...	60	No	West. CCL rewound
1....	½	2	1800	220	60	No	Westinghouse CCL
2....	10	2 or 3	1200	...	60	No	West. CCL rewound
1....	5	..	1200	220	60	No	Union (New)
2....	3	3	1800	220	60	No	C.G.E. rewound
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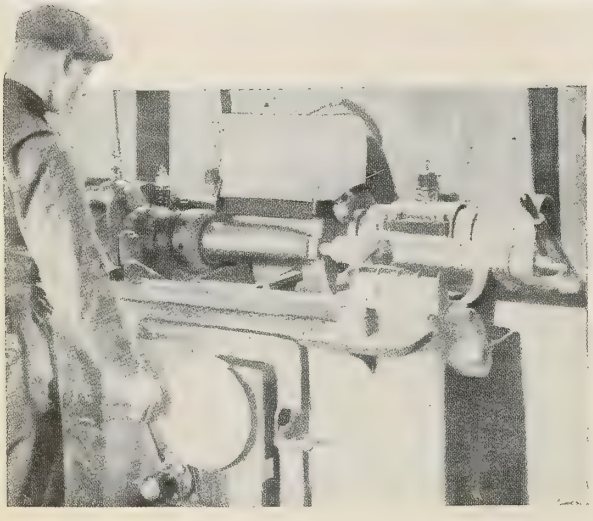
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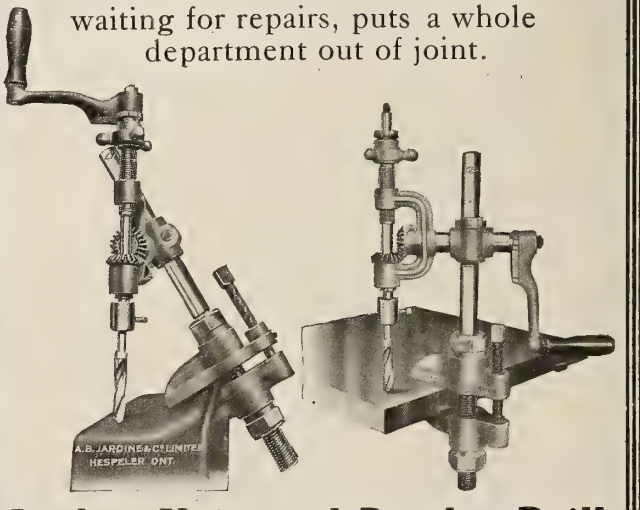
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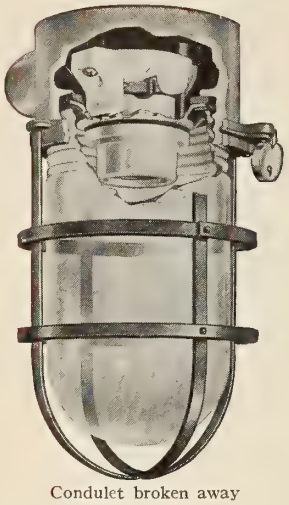
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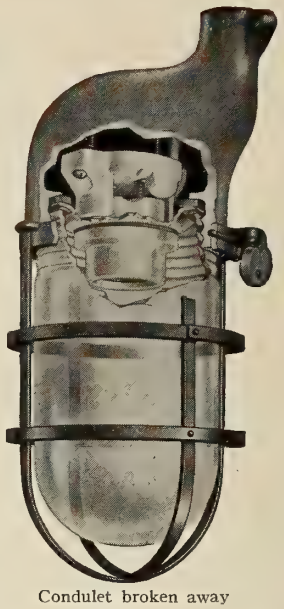
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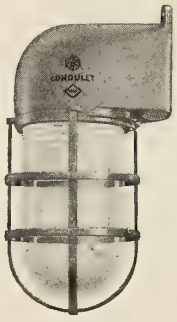


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Vol. XIX. TORONTO, DECEMBER, 1918 No. 8

Canada on Eve of Tremendous Developments

Whether for Good or Evil Depends Upon the Quick Decision of her Government and her Captains of Industry

By G. M. MURRAY

ONE frequently hears the remark that, now that the war is practically over, our real troubles will begin. There is many a true word spoken in a jest. While the problems of the immediate future are in some way not to be compared with those of the past four years, they will nevertheless present features of extreme difficulty, and occasion us all kinds of worry in effecting their solution.

In working out a general programme of reconstruction, the Ottawa Government is faced with a task of gigantic proportions, embracing among its many aspects a well ordered plan of demobilization, schemes for land settlement, provision against unemployment, and the initiation of public works. More important almost than any of these is the question of export trade.

Canada's prosperity during the past four years has been entirely due to her participation in the business created by the war. Our own and foreign governments have spent money freely with us; ability to make quick delivery of satisfactory material has been the determining factor, rather than the price. Little wonder, therefore, that for the last fiscal year we showed exports of goods ordinarily classed as manufactures amounting in round figures to $700,000,000, whereas before the war our exports of goods ordinarily classes as manufactures amounted to only $50,000,000.

Export Trade

The significant fact for us to bear in mind to-day is that this enormous export trade will almost immediately be cut off. It may not go back to the $50,000,000 pre-war basis, because in certain commercial lines, such as pulp and paper, we have gone ahead by leaps and bounds in spite of the war. It does mean, however, that unless we take prompt and effective steps to replace this export of war material with exports designed for peace consumption, our country will be swept by a wave of depression, the consequences of which are almost too serious to contemplate.

To appreciate what a sudden cutting off of an export trade of $700,000,000 would mean, one has only to recall the fact that in 1915 the total value of the products of all Canadian factories was $1,400,000,000. If in that year, half the factories in Canada had suddenly closed down, paid off all their employees, thrown all their materials on to the bargain counter, and boarded up their windows, the situation they would have precipitated would have been quite comparable to the one we now face in the loss of this export business. Canada simply must secure export business to replace that of which she is to be deprived. Further, she must secure it quickly if she is to avoid unparalleled hard times, to say nothing of revolutionary movements such as are now sweeping Europe.

Labor Aspects

It is only a short time since some employers of labor were consoling themselves with the reflection that the time was near at hand when wages could be reduced. A more ill-advised policy was never given expression to. Wages should not be reduced, wages must not be reduced, until a lowering in the cost of living makes such a reduction justifiable. There is nothing in the present situation to indicate the likelihood of any immediate lowering in the cost of living. On the contrary, with a world shortage not only of food, but of wool, leather, fuel, and all those things which go to make up the necessities of life, the probability is that instead of working to a lower level, the cost of living will tend upwards at least until another harvest has been gathered in.

The employer who endeavors to profit by a period of unemployment to force wages down to a point where they will be lower than the cost of living is only digging his own grave. He may appear to succeed for a time, but the fact remains that no man can continue to accept a wage that will not permit him to live. Any attempt to force wages downward, for the present at least, is doomed to disaster.

Nor is it to the interest of the employer, under present conditions, to stand pat and allow unemployment to develop on an extensive scale. He would be an extremely short-sighted man who, while not exactly trying to force wages down, would welcome a spell of unemployment in the hope that work people would be cutting under one another in order to secure the jobs he had to offer.

Canada has her Bolshevists, just like Russia and Germany,—in far greater numbers than the average man has

A Great Opportunity in Europe

The immediate possibilities of the European market are tremendous. Literally thousands of square miles of thickly-populated territory have been laid waste. These areas will have to be rebuilt; there will be houses, shops, factories and public buildings to construct; roads and railways to be repaired, canals and bridges to be restored.

any idea of. Tons and tons of the most inflammatory literature, not merely in foreign languages, but in the English language, have been confiscated and destroyed, but it is safe to assume that tons and tons have escaped the viligance of our authorites, and have been distributed, sowing the seeds of discontent and possibly of revolution. The most receptive audience that the Bolshevist agitator can address is an audience of discontented men; the most fertile field for the germination of revolutionary ideas is the empty stomach.

The employer who deliberately lends himself to the creation of a situation whereby men will be forced to work for less than it costs them to live is unwittingly opening the gates to revolutionary doctrine and inviting anarchy to run wild.

Wages must be maintained, and it is for the business men of Canada to join forces in working out a plan that will keep our people busily employed at rates of wages which represent a fair advance over the cost of living, so that the thrifty man can always be laying something aside for a rainy day. If this can be accomplished, and if, coupled with it, there can be launched an ambitious programme of social betterment, Canada can be made a country worth living in. The Bolshevist agitator will instinctively take to cover when he finds people deaf to his appeals, and for the moment his elimination is one of the most vital results that we should all be endeavoring to achieve.

Outlook for World Trade

Even without this spur of necessity, Canada would probably be saved from the dangers which confront her by the enterprise of her more wide-awake business men; if the spur is instrumental in bringing our Government actively into the campaign in a large way, the outlook for Canada will become exceedingly bright.

The immediate possibilities of the European market are tremendous. Literally thousands of square miles of thickly populated territory have been laid waste. These areas will have to be rebuilt; there will be houses, shops, factories and public buildings to construct, roads and railways to be repaired, canals and bridges to be rebuilt, mining properties to be restored, and a thousand and one other construction activities, every one of which will call for the expenditure of money on supplies and materials of a kind which Canada is equipped to furnish. None or practically none of the business will go to Germany or Austria,—of that we are sure. France and Britain have been so wholly concentrated upon war work that they will naturally require more time than Canada will require to adapt their industrial plants to peace purposes. In the natural order of things, therefore, Europe must temporarily look to America, for the reconstruction supplies most urgently required.

It is quite true that business of that kind lacks the attractiveness that is always associated with business of a permanent character. For the moment, however, Canada's chief concern is to get big orders for large volumes of material, and to get them quickly. By jumping into the situation at once, with a well-organized plan for specialized production and collective selling, Canada should be able to secure enough business to keep her factories running full blast for months to come. The question is, will she do it?

There are only two difficulties standing in the way which amount to anything. One is the question of finance, the other the question of transportation. France, Belgium, Italy, Poland and Serbia will need materials so badly that it will be no trouble for Canada to sell goods. What will concern us will be, first—how are we going to deliver those goods, and second—how are we going to be paid for them after we effect delivery?

For transportation we will at first be at a decided handicap as compared with the United States. The shipbuilding programme of that country is much further advanced than is Canada's, in addition to which it controls its own tonnage, whereas Canada's tonnage will for a time be more or less subject to the control of the British Admiralty. Eventually, the far-sighted shipbuilding programme for which we are indebted to our Minister of Marine will prove equal to all requirements, whether for European or world-wide trade. In the meantime our best endeavors must be concentrated upon securing the release from the Admiralty of as many as possible of those vessels formerly engaged in the Canadian Trans-Atlantic service.

The Short-Sighted Retailer

Reports are current to the effect that retailers are beginning to cancel orders, evidently with the intention of allowing stocks to run low in preparation for a siege. No doubt the man who pursues a policy of that kind thinks he is displaying rare judgment; in reality he is helping to bring about the depression against which he is anxious to protect himself.

Canada's splendid response to the appeal of the last Victory Loan is the most satisfactory feature of the whole situation. As a nation we might be able to produce at satisfactory prices huge quantities of the exact kind of goods required; as a nation we might also undertake the delivery of those goods to the markets where they are to be consumed; but unless, as a nation, we can show our prospective customers that we are able to finance them on terms as favorable as any other country is prepared to offer, then we will either not get their business at all, or only such part of it as may be left over when other countries have had their fill.

Credit to France

France and Belgium could hardly buy anything in the United States or in Canada to-day, if they were required to pay cash. But France showed herself in 1870 possessed of wonderful recuperative powers, and her recent performance in the field of battle justifies the belief that her recuperation on this occasion will be no less sure, and, comparatively speaking, no less rapid. The credit of France, therefore, will be good, but the basis for that credit must be supplied as the result of international negotiation.

In its actual working out, the plan is very simple. France for example might issue a fifteen-year Reconstruction Loan, for which the consolidated revenues of the Republic, plus the indemnities to be recovered from Germany, would serve as security. Of that loan, the Government of Canada might take $500,000,000 under an agree-

ment to hold the paper until maturity so as to protect it against depreciation. Meanwhile a credit of $500,000,000 would be established in Canada for France, either out of the proceeds of the recent Victory Loan, or by the flotation of a Reconstruction Loan in the Spring of 1919. If the Canadian Loan were also placed upon a fifteen-year basis, the interest due upon it would be met by the interest payable upon the French Loan and at maturity the repayment by France would furnish the money to wipe out the Canadian Loan.

Canada must of necessity resort to some such plan if she is to get a look in at all upon the reconstruction business in Europe. The United States, with its almost unlimited financial resources, is certain to offer very attractive credit conditions to governments that will naturally wish to spread their obligations out over a long term of years, and if Canada is to participate at all, she will have to be prepared to make just as favourable an arrangement as the United States will offer.

Confidence Is Needed

So far, so good. But what of the interval between the stoppage of work on munitions and war material, and the commencement of work on reconstruction orders?

The negotiation of peace terms, not so much with Germany and Austria as among the Allies themselves, will necessarily make first claim upon the time and attention of European statesmen, for to some extent at least the credit of the Allied Governments will be affected by the amount of the indemnities to be collected from Germany. Conceivably, therefore, three or possibly even six months may elapse before credits can be established in this country against which French, Belgian, Italian and other purchases can be made. And in that interval, the problem of unemployment may become very acute unless effective measures are adopted to keep up production in our factories.

It is all very well to have plans prepared and ready to launch for certain kinds of useful public works such as road building, the improvement of our canal system and municipal housing. Work of that kind, however, would mean expenditure on capital or plant account at a time when both labor and material stood at high water mark. As a second line of defence against unemployment, it may be very desirable, in fact very necessary, to have everything in readiness to undertake such work, but from an economic standpoint, it is a defence which we should only fall back upon when other defences fail, defences under which the big outlays on capital account will be made by other governments, for if Canada can possibly do so, it will be far better for her to defer her own public works until the market for labor and material becomes more favorable.

Remembering always that these public works can be gone ahead with if absolutely necessary, and that in the meantime the prospects are bright for capturing an export trade greater than anything Canada has ever known before, the situation is surely one which justifies real confidence. More than that, it is a situation calling for courageous action. Huge success is within reach if we only organize properly to go after it. On the other hand, let it not be forgotten that a decision to play slow and safe under existing conditions may easily bring in its train consequences of the most disastrous kind.

Reports are current to the effect that retailers are beginning to cancel orders, evidently with the intention of allowing stocks to run low in preparation for a siege. No doubt the man who pursues a policy of that kind thinks he is displaying rare judgment; in reality he is helping to bring about the depression against which he is unduly anxious to protect himself. The order cancelled by a retailer means a curtailment of factory production; curtailment of factory production means workmen thrown out of employment; workmen out of employment means less business for the retailer. It all works around in a circle very quickly. The retailer who talks pessimism and acts pessimism is taking one of the surest means in his power to damage his own business. The spirit above all others that Canada needs among her business men to-day is confidence and optimism. Let that spirit have sway, and let it be fortified by courageous action on the part of our Government, and there is no limit to the industrial expansion and prosperity which Canada may experience during the next few years.

So far as business is concerned, the future has nothing of the speculative; to anyone who will stop to look the situation squarely in the face, it is as clear as the sun at midday. The world-wide demand for food, for clothing, for building material, for engineering supplies and for other commodities, almost staggers the imagination. The needs of Europe alone, in rebuilding the devasted areas, will be sufficient to keep the factories of the world busy for easily three years. In South America, in South Africa, in Australasia, in India, and in China, stocks are at a lower ebb than they have been for years. Russia, with its vast potentialities, once law and order are restored, will open up markets such as we have never dreamed of.

And the beauty of it all is that the enjoyment of these markets will be reserved primarily for the Allies. Germany and Austria cannot be eliminated altogether, because they must be allowed sufficient latitude to bring about their own industrial rehabilitation. But considering only the world trade which Germany will lose, that in itself would be a tremendous trade to divide up among the allied nations. When to it is added the trade incident to the replenishment of exhausted stocks and the trade that will be occasioned by the reconstruction of Europe, it will be apparent without argument that the industrial future of Canada is secure beyond any shadow of doubt.

Will the Government Take a Chance?

The supreme concern of the moment, however, is to bridge over the interval which must elapse before the allied governments come into our market to purchase, and here is where our Government can well aford to take a chance.

For the reconstruction of Europe, there are various

The Future Is Not Speculative

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Wages Should be Maintained

The employer who endeavors to profit by a period of unemployment to force wages down to a point where they will be lower than the cost of living is only digging his own grave. He may appear to succeed for a time, but the fact remains that no man can continue to accept a wage that will not permit him to live.

classes of material which are certain to be required. For example, the work cannot proceed very far without enormous quantities of cement. Cement in turn suggests reenforcing bars for concrete work. It would seem to be an absolutely safe guess that Europe will be able to take all the lumber we can produce for the next three years at least. The erection of buildings immediately suggests nails, hinges, and other kinds of builders' hardware, besides sash and door, plumbing supplies, roofing, etc.

Without carrying the illustration any further, it seems pertinent to enquire why could not our Government take the initiative by saying to our manufacturers:—"Keep up the production of standard commodities in these lines, and we will agree to finance you until such time as the allied governments are ready to commence their purchases." The Canadian Trade Mission now in London would surely have the facilities for obtaining reliable information as to what would be standard or safe lines to produce for consumption in Europe. There would always be the possibility, of course, of a slight shrinkage in value between the date of production and the date of sale, but if the alternative is to be prepared to launch public works on an extensive scale in Canada, or failing to get such works under way quickly enough, to have recourse to relief work and soup kitchens, then as insurance against such conditions any possible shrinkages in values would seem to be a very low premium indeed for the Government to pay. Isn't it worth thinking over?

News and Views of the Association

THERE will be found each month in this department a record of the various activities of the Canadian Manufacturers Association during the preceding month. The information is supplied to INDUSTRIAL CANADA officially, and all members of the Association are urged to acquire the habit of reading and checking over the contents of the department carefully in order to keep themselves posted on the work of the Association.

Executive Council Meeting

There was an unusually large attendance at the meeting of the Executive Council, held in Montreal on Thursday, November 14. The members of the Council were guests of the Montreal Branch at luncheon at Freeman's Hotel, following which a business session was held with the president, Mr. W. J. Bulman of Winnipeg, in the chair. The meeting was generally regarded as one of the best in the history of the Executive Council, keen interest being shown in the reports presented and the important business of the Association up for consideration.

Opening of New Branch at Ottawa

The Executive Council, at its last meeting in Montreal on 14th ult., unanimously resolved that the time had arrived for opening a Branch of the Association at the capital. It is believed that when in full operation, the Branch Office in Ottawa will form a valuable adjunct to the important services which the manufacturers are receiving from the Association.

National War Savings Campaign

At the meeting of the Executive Council in Montreal, a letter from Sir Herbert Ames, chairman of the National War Savings Committee, to Mr. C. Howard Smith, chairman Montreal Branch, outlining plans for the campaign to sell war savings stamps and soliciting the support of manufacturers, was presented. The Council expressed approval of the undertaking, and the secretary was directed to assure Sir Herbert Ames of the cordial support of the manufacturers of Canada.

Assistant General Secretary at Meaford

In response to an invitation received from Mr. F. Kent, of the Seaman, Kent Co., Meaford, Mr. H. Macdonald, assistant general secretary of the Association, attended a meeting and luncheon of the Meaford Board of Trade on Friday, November 29. About 150 men sat down to lunch, after which several addresses were delivered, including one from Mr. Macdonald. The business men of Meaford are fully alive to the necessity of waking up to the great possibilities of reconstruction and the export business, and the purpose of the meeting was to launch a movement to obtain increased business for Meaford industries. In writing to thank the Association for the assistance rendered through the presence of Mr. Macdonald, Mr. Kent stated that many citizens had since spoken most enthusiastically of his remarks.

Congratulations from National Association

One of the pleasing features of the meeting of the Executive Council last month in Montreal was the reading of the following telegram from Stephen C. Mason, president, the National Association of Manufacturers of the United States of America:

"Congratulations to the manufacturers of Canada for their strenuous work in providing from the Dominion's resources so large a part of the supplies needed to support the soldiers of Canada in the magnificent work which they have done towards achieving the victory for world liberty which is now assured."

To this the following appreciative reply was sent by W. J. Bulman, president, Canadian Manufacturers Association:

"Executive Council of the Canadian Manufacturers Association, in session assembled at Montreal, heartily

reciprocate the congratulations contained in your telegram of yesterday appreciating fully the splendid contribution in men and materials made by the manufacturers of the United States of America in the cause of liberty."

Change at Edmonton

Mr. C. H. McAuley, chairman of the Edmonton section of the Prairie Provinces Branch, who is the traffic manager for the Swift Canadian Company at Edmonton, has been transferred to the head office at Chicago, and will leave to assume his duties in a few days. Mr. C. A. Graham, vice-chairman of the section, and manager of the Great Western Garment Company, Edmonton, will assume the duties of chairman for the balance of the year.

Thanks to Stationary Engineers

Pursuant to resolution by the Canadian Association of Stationary Engineers, offering the services of its members as consulting engineers to the manufacturers during the present coal and industrial crisis, a letter was submitted to the Executive Committee of the Association requesting it to be understood that the services of the stationary engineers would be continuously available to the manufacturers without charge, while the need remained. It was agreed to convey to the Association of Stationary Engineers the thanks of the Executive for this offer.

Formation of Branches

Reporting to the Executive Committee, the Secretary stated that a second circular has been issued on Nov. 1st to a selected number of members throughout Ontario, representative of the various districts, offering encouragement to the formation of sub-branches and sub-sections for the effective handling of local trade problems and to enable the members to take a more active interest in the work of the Association, which elicited replies from four districts, namely, Brantford, Peterborough, Ottawa and St. Catharines, the members of which were disposed favorably to consider the matter.

Conference on Bankruptcy Bill

The following members of the Legislation Committee have been appointed to represent the committee at a conference with the Canadian Credit Men's Association on certain features of the Dominion Bankruptcy Bill, which is being promoted by the latter Association: Messrs. S. Harris (chairman); Jephcott, Gourlay, Waddie, Lowndes, Tindall, McKinnon and J. F. Ellis. No date has yet been set for the conference.

"Industrial Canada" Committee

At a meeting of the Industrial Canada Committee, held on Monday, November 11, it was agreed that as much material of a reassuring nature as possible should be secured and published in INDUSTRIAL CANADA. It was felt that, while there was every reason for confidence, there might be a tendency in some quarters for business men to hold back and thereby retard the business of the country. Rather than have such retrenchment occur, it was deemed advisable to give all the information possible about developments now in hand or in prospect, which would insure a continuance of business activity. To get such information, a circular has been issued to members near enough to Toronto to reply by mail, while telegrams were sent to secretaries of branches located at a distance asking them to forward immediately particulars of developments in their territories.

New Member of Committee

Mr. J. F. Mackay, treasurer of the Russell Motor Car Co., Limited, Toronto, has consented to become a member of the Industrial Canada Committee. It was decided at the meeting of the Committee, held on November 18, that Mr. Mackay's presence would be of great value, and accordingly it was unanimously agreed that he should be invited to join. Up to this summer, Mr. Mackay was business manager of the *Toronto Globe*, a position ranking among the very first in Canadian newspaperdom. He was prominent in newspaper circles not only in Canada, but in the United States, where he was for several years a director of the American Newspaper Publishers' Association. In Canada, he is an ex-president of the Canadian Press Association. His long experience in the publishing business has given him expert qualifications which will be of great advantage to the Industrial Canada Committee, who are to be warmly congratulated on having secured his co-operation.

Insurance Department Services

As showing the extent of the services of the Insurance Department, it will be of interest to mention the number and variety of matters which formed the subject of advice during the past few months, and which involved considerable time and correspondence.

During the months of September and October, 64 members consulted the Insurance Department on various matters pertaining to insurance, the following being the various points on which the Department has been consulted during that month:

Standing of companies	9
Insurance values	6
Policy wordings and examination of policies	19
Rates	11
Construction advice	7
Automatic sprinklers	4
Inspection service	15

Ontario Workmen's Compensation

After having given renewed consideration to the subject of workmen's compensation in Ontario, pursuant to resolution of the annual convention, the Legislation Committee have directed the Association's counsel to prepare amendments of the Workmen's Compensation Act, Ontario, the chief of which have to do with the following matters:

1. Provision for having the accounts of the different group funds audited by auditors appointed by the Association representing the groups.
2. Securing detailed statements of the payments in and out of the funds for the use of the Safety Associations.
3. To provide an adequate appeal tribunal on questions of law arising in connection with the Act.
4. Recognition of the right of the Association to represent their respective groups before the Board in matters of common interest.

As the proposed amendments will materially affect the Safety Associations, the secretary was instructed to notify their secretary, Mr. F. M. Tobin, to this effect.

Ontario Municipal Business Tax

The Legislation Committee of the Association has been giving attention to the complaint of a member regarding that provision of the Ontario Assessment Act, by which an occupant of premises for a portion of a year may be liable for a full year's business tax. Such a contingency may, however, be obviated by an appropriate proviso embodied in the lease between the lessor and lessee. The Committee notified the member that his objection would be kept in view when prospective amendments of the Provincial Assessment Act are introduced at the next session of the Legislature, with a view to providing for an equitable allocation of the business assessment in cases where premises are let for a shorter period than a year.

The Lyons Fair

The Minister of Trade and Commerce has applied for thirty booths at the next Lyons Fair, which opens on March 1, 1919, and continues for two weeks. A few of the booths will be used for a general exhibit of Agriculture, Forestry and Fisheries, Minerals and Metals, but most of the booths will be placed at the disposal of the Canadian Manufacturers Association for allotment to manufacturers for a display of samples and catalogues or photographs of articles which will be available for exportation to France.

In accordance with the general system recognized by the management of the Lyons Fair, the conditions attached will be that no booths shall be allotted unless proper arrangements are made for representation by qualified and authorized parties who can give information about the articles exhibited.

The Department of Trade and Commerce will pay for the booths, and will also pay the freight upon the exhibits from the port of embarkation to Lyons. The number of members of the Canadian Manufacturers Association who have expressed a wish to exhibit is largely in excess of the space available—a qualifying testimony to the growing interest in export trade.

The Lyons Fair is not a mere exhibition. The firms represented and encouraged to accept orders, and the orders actually taken in 1918 were valued at 750,000,000 francs.

For many years before the war the famous Leipsig Fair annually attracted buyers from all parts of the world. France hopes that after the war the Lyons Fair will attract a much larger number of visitors than the Leipsig Fair, and the success so far achieved, in spite of all the difficulties of war time, makes it seem probable that France will not be disappointed.

The Lyons Fair is not designed merely as an annual sale of French goods. It is far broader in its scope. Other nations can share its advantages with France, and quite a large number of British and American manufacturers have realized the importance of exhibiting. Very few Canadian manufacturers have hitherto paid any attention to the Lyons Fair. This is partly due to the fact that Canadian manufacturers have been very busy in the production of war supplies and have also found it peculiarly difficult to get shipping facilities for private business. Many of them have had trouble also in obtaining raw materials. They did not think it wise, under the circumstances, to offer to take orders for what they might never be able to deliver.

The whole situation is altered by the recent war developments. With permanent peace in sight it is important that Canadian manufacturers who wish to participate in after-war export trade, should be represented at the next Lyons Fair, and this is now assured.

Chairman, Toronto Branch

Major L. L. Anthes, Chairman, Toronto Branch, having been appointed Director of the Demobilization Branch of the Department of Soldiers' Civil Re-establishment, at Ottawa, Past Chairman, Thomas Roden, of Roden Bros., Limited, has been appointed Acting Chairman of the Toronto Branch, until Major Anthes is free to return to his duties as Chairman.

Local and Trade Sections

A fitting suggestion is made to us by Mr. G. E. White, chairman of the Brandon Branch, in reference to the needs of the West, which might with great propriety, be adopted all over the Dominion. Mr. White suggests that the interests of the manufacturers could be carried on to much greater advantage with live sections in the main towns and cities, and that the necessary machinery should be provided to enable all sections to co-operate in any movement, to crystallize and bring to definite results any cause in which the Canadian Manufacturers Association is interested.

Mr. White suggests that the plan could be worked out in the following manner: That when a section is formed in any locality, the members be assessed a sufficient annual sum over and above the annual membership fee, payable to the Association, which assessments would be used for the benefit of that Branch. In this way, funds would be procured by the sections to secure a meeting place and make such allowance to the secretary as the circumstances in each case would require. The formation of such sub-branches or sections for the effective handling of local trade problems would enable the members to take an active interest in the work of the Association, and in general to further the other interests of Canadian manufacturers. Every branch, every trade section is a producer of ideas. Ideas are to a commercial organization what raw materials are to a factory. The Canadian Manufacturers Association is so thoroughly organized that it knows how to make the best use of such materials in the best interests of the members.

The by-laws provide that the members of the Association, in any district, may organize themselves into branches or sections, which are autonomous in matters that concern themselves only, in all other matters reporting their findings to the General Committee. The Executive Council will give its whole-hearted encouragement to the formation of such sections, as the manufacturers in any district may desire to organize. The chairman of such section will be a member of the nearest branch of the Association, so that a direct connection is thus provided for conveying the views of the various sections to the Executive and General Council of the Association. Where necessary, the assistance of a member of the staff will also be available in organizing a branch or section in any locality.

The Association's Representatives

The following members of the Association were associated with representatives of the Trades and Labor Congress of Canada and the Joint Committee of Technical Organizations, in drawing up and presenting to the Dominion Government the joint recommendations on reconstruction policy: H. J. Daly, H. J. Daly Co., Ottawa; C. Howard Smith, Chairman Montreal Branch; Major L. L. Anthes, Chairman, Toronto Branch; R. E. Jamieson, Canadian Consolidated Rubber Co., Montreal; George A. Slater, George A. Slater, Limited, Montreal; S. J. Williams, Williams, Greene & Rome Co., Kitchener; G. M. Murray, General Secretary, Toronto; W. P. Hughes, Assistant Secretary, Montreal.

Some Developments that Inspire Optimism

A Few of the Many Reasons why the Manufacturers of Canada Should Take Courage and Proceed Fearlessly with Plans for the Extension of Industry—Instances of What is Being Done all Over the Country to Enlarge Production

INDUSTRIAL CANADA takes pleasure in commencing the publication in this issue of a number of encouraging reports from members of the Association, who have been invited to furnish concrete instances of industrial developments calculated to inspire confidence in the business community. A great many letters, full of the most optimistic views as to the outlook, have been received, and from these the following helpful paragraphs have been selected for publication. It is hoped to continue the series during the next few months. It will be noted that all the material which follows deals with industrial developments only. No attempt has been made to estimate the extent of those government or municipal works, railway and transportation undertakings, etc., which will be taken up in due course. The latter will add immensely to the sum total of national enterprise.

Switching Over from Munitions

A. H. Tallman, manager, Tallman Brass & Metal, Limited, Hamilton: "For some time we have been running a good portion of our plant on munitions. Since the armistice has been signed, the orders have been cancelled. We, however, have great faith in the future and, with the exception of laying off a few hands owing to the cancellation of orders, we are rapidly turning our plant on to commercial work. We expect to keep 90 per cent. of our employees working, and anticipate very shortly increasing our staff to more than we have had employed during the past year. Our lines are varied, and we anticipate no trouble in swinging back to 100 per cent. commercial work. In some departments we are making up orders to keep the departments running for the next few weeks, until the adjustment from the munition work to a commercial basis has been made. We have every confidence in the future and believe that we will be running to full capacity in a very short time."

Plants Being Extended

J. P. Vair, manager of the Otterville Mfg. Co., Limited, Otterville, Ont., reports that his company are completing plans for a considerable extension to their plant, which will be devoted in large part to the manufacture of Eureka post hole diggers. The new addition will enable them to triple their present output of these goods.

W. Mitchell, president, the Circle-Bar Knitting Co., Limited, Kincardine, Ont., states that: "This year we have enlarged our boiler house, put in an additional boiler, and built a 90 ft. 36 in. diameter brick smoke stack. Next year, if business does not go all to pieces, we purpose adding to our manufacturing area, also building a stock room and store house. We would like to get into the spinning of wool yarns. Most all factories in this town could take on additional labor."

Will Build New Factory

Mr. J. Beatty, Beatty Bros., Limited, Fergus, Ont.: "We expect to build a new factory in London at our Chelsea Green works next spring, at a cost of approximately $40,000. We have also got to do some building at some of our other branches during the coming year, but our plans are not sufficiently matured to make any announcement in regard to this at present. We don't need to add that we find business good, or else we would not be undertaking the above expense."

Adding to Plant and Equipment

S. R. Parsons, president, the British American Oil Co., Limited, Toronto: "While there may be a short era of dullness before us, yet it cannot last very long, and to my mind the future of Canada is very bright. We are in a much better position now than immediately before the war to take up our regular and ordinary business problems. My own company, like many other manufacturers, has been hampered during the war period by inability to secure steel and other material for construction purposes. We are, therefore, now looking forward to adding materially to our plant and equipment. There is every reason for courageous handling of all our industrial problems."

Big Opening for Labor

R. W. Leonard, president, Coniagas Mines, Limited: "The principal market for any large amount of labor of a suitable kind which has come before my immediate notice is in the gold and silver mining districts of Northern Ontario, where I have no doubt 5,000 additional men could be utilized to good advantage. It is impossible for anyone to compare the supply, which at present is indeterminate, with the demand, which is entirely problematical and which will depend entirely upon the class of labor available and the scale of wages."

Will Build New Type of Machine

F. A. Harley, Harley-Kay, Limited, Georgetown, Ont., builders of knitting machinery: "We intend at once to undertake the manufacture of a new machine which we had in hand just before the war started. These are for the automatic production of a class of ribbed hosiery. A number of these machines had been placed on the market with very great success, and the promise of substantial business. However, owing to the shortage of skilled help, and to the military contracts which were being placed, we had to put this machine in abeyance. Already we have orders standing for a number of these machines from the best knitting mills in Canada."

Export Orders for Wall Paper

E. G. Staunton, president, Stauntons Limited, wall paper manufacturers, Toronto: "We have our plans all prepared for considerable extensions to our plant, which we will go ahead with the moment building conditions warrant. We have increased the range of our manufacture since we started and are now making a line of 22-inch papers, which are specially prepared for export trade. We have received already some

nice orders from colonial sources, and the business is continuing to come in. We feel satisfied we can get a fair share of this business under normal conditions."

Orders for Six Months Ahead

W. Gordon, managing director, The Steel Trough & Machine Co., Limited, Tweed, Ont.: "We expect to build a new addition to our plant here in the spring, and will therefore require quite an addition to our staff of workmen. As far as we can see at the present time, we expect to run our full capacity during the next six months. We have the material and the orders. We might say that we are in the market at the present time to contract with some reliable firm for a supply of sheet metal stampings. We use this particular line of stampings constantly and in large quantities."

Manufacture on Larger Scale

Winton Hall, secretary-treasurer, John H. Hall & Sons, Limited, Brantford: "Since the signing of the armistice, we are receiving a great many inquiries, and a goodly number of orders, for pipe-threading machinery, our regular line. We have made a number of improvements to our machines, and with our additional equipment are in excellent shape to manufacture on a much larger scale than heretofore."

Canadian Milk Products, Limited, Toronto, according to a statement of S. B. Trainer, secretary-treasurer, purpose building a new milk powder plant next year, if business goes on as they hope it will. This will mean the spending of from $70,000 to $80,000.

New Plant at London

H. S. Hall, Jersey City and Toronto, will, in a few weeks' time, install a plant at London, Ont., for the weaving of glove silk cloth, also chamoisette cloth for gloves.

At least one branch factory of an American industry operating in Canada intends to add the manufacture of certain lines which it previously imported from the parent factory, thus maintaining its operating force at war-time strength.

Rous & Mann, Limited, printers, Toronto, are erecting a new factory building, four stories and basement, over 100 ft. long. They have confidence that business conditions will be such that they will need all the extra space it provides.

Add New Lines to Output

The U. Pauze & Fils Company, Montreal, intend to add the manufacture of spools for silk and cotton thread and handles for export to France to their present lines.

As an evidence of progress, the Palmolive Co., of Canada, Limited, are at present adding 7,000 square feet of floor space to their new factory, which was only completed in April last.

The Partridge Rubber Works and the White Sewing Machine Co. are Guelph industries which are reported to be extending their plants at present.

More Catalogues in Sight

It is the experience of Noble Scott, Limited, printers, Toronto, that a number of firms are already preparing extensive catalogues for immediate issue, some of these having been held up on account of the war.

Canada Crushed Stone Corporation, Limited, Dundas, are getting out plans to put in a large storage system, as well as a re-screening plant, at a cost of $50,000 to $60,000.

The Dominion Rubber System are doubling the capacity of their Kitchener plant, and will probably require 700 more employees. The Lang Tanning Co., Kitchener, are also doubling their plant.

Two of the plants of the Breithaupt Leather Co., Limited, Kitchener, are being enlarged and all of them modernized to date.

To Manufacture New Lines

Factory at Stratford will Make Children's Furniture and Folding Draft Screens

Children's furniture and folding draft screens are new lines, hitherto not made in Canada, which will be manufactured at Stratford by the Stratford Manufacturing Co., Limited. Charles V. Moore, president of the Company, says: "We also expect now a big export trade on a number of our lines. Just when the war broke out, we had a man take a number of our lines as samples to England, and he has kept us informed from time to time that there is an enormous business to be done in our lines in the British Isles, and we are looking forward to receiving a lot of business from that source.

"We have also had inquiries for our goods from all over the world. Just two weeks ago we received an inquiry for our goods from Japan. Personally, we look forward to big business, and we are quite optimistic as to the future."

Optimism in Furniture Industry

Return of the Soldiers will Mean Big Business for the Home Furnishers

Various reasons are pointed out by H. W. Strudley of the Imperial Rattan Co., Limited, Stratford, for optimism in the furniture industry. Among them he mentions the shortage of output since 1915 on account of inability to compete with war industries on the labor market; the thousands of new homes to be furnished when the soldiers return; the curtailment of importation from the United States because furniture is as cheap in Canada as it is there. He believes the country will have better homes and better-furnished homes as a result of the war.

New Department Being Added

Large Manufacturers of Printing Ink Decide to Introduce New Line of Production

An entirely new department which will call for a number of chemists and laboring men as the organization grows and business develops, is being added by the Ault & Wiborg Co. of Canada, Limited, manufacturers of printing inks, etc., Toronto. A. C. Ransom, the president, states that: "It is an entirely new industry as far as we are concerned, in Canada, and if it turns out as satisfactorily as we believe it will, it will not be many months before we will be under the necessity of erecting additional buildings to our present properties. Of course, how far-reaching the industry will grow as time passes is a question which only the future can answer. We cannot, however, refrain from again expressing our extreme optimism as to the outlook, and while we do not doubt that there will be some settling out from time to time (that is no more than could naturally be expected), we are not a bit uneasy as to the entire outlook."

No Curtailment in Silk Industry

Plants Being Extended and New Companies Being Established to Produce Specialties

Dealing with conditions in the silk industry, C. A. Reynolds, general manager, Belding Paul Corticelli, Limited, Montreal, says: "We have no reason, at present, to believe that there will be any curtailment in the silk industry. Prices of raw silk are very firm, and likely to remain so, owing to the increased demand which is opening up in Europe, and we look for continuous good business in the lines we manufacture.

"We have extended our plant, particularly our braid and tape mill at Coaticook, to take care not only of our present business, but of export business, for which we are having a number of inquiries.

"During the whole period of the war, we have been short of help, but we are expecting, with the return of peace conditions, we will be able to get the necessary help for the increased business which we look for.

"There are a number of new companies starting in Canada, particularly silk hosiery, gloves, etc., all of which will tend to increase the consumption of silk in this country."

Artificial Limb Industry

Demand Grows Apart Altogether from Requirements of Injured Soldiers

So great has been the demand for their product, that Authors & Cox, Toronto, manufacturers of artificial limbs, etc., have found it necessary to secure more capital, enlarge the scope of the business and convert it into a joint stock company. The first impression would naturally be that the war has created an unusual market for the product of this firm, and necessitated enlargement, but while this is true to a limited extent, it is rather the natural growth of the business along ordinary lines that is responsible for the present need for reorganization. Injured soldiers' requirements are well taken care of by the Dominion Government, but there are occasional men who prefer to secure a more exclusive class of artificial limbs, etc., and buy them for themselves.

House Building Will Flourish

Unprecedented Number of Prospective Customers for the House Building Industry

A banner year for the building business in 1919, so far at least as it applies to dwelling-houses, is the prediction of A. A. Smith, president, Canadian Aladdin Co., Limited, Toronto. The Company have at present an unprecedented number of prospective customers who will build next spring. Prospects for house building the coming year are the best in the company's history, even without the assurance that some established industries may go in for house-building to provide for their working forces.

A Good Business Thermometer

Orders for Time Clocks and Scales Show no Slump in Retail Business of the Country

Pointing out that the sale of time-recorders and computing scales gives a pretty good idea of the state of business generally, Frank Mutton, general manager, International Business Machines Co., Limited, Toronto, on Nov. 23, stated that: "We are in receipt of even more orders for time recorders since the date of the signing of the armistice, two weeks ago, than in probably any other two weeks this year. We think this speaks for itself, and in fact, we were never more confident of the future of our business than we are to-day, and are laying our plans to double our output.

"In our scale division, which demand comes from the retail stores, we are also in receipt of the same amount of business proportionately as we were during the war, indicating the retail merchants also have confidence.

"So confident were we of the business conditions after the war, that during the last six months we have expended considerably over $100,000 in enlarging our factory to take care of the business we knew would be coming."

Shoulder to the Wheel

"Bouncing over the wires we have despatched our orders for supplies, doubling and trebling in some cases those already placed in due honor and deep respect of the announcement of Victory, recognizing the necessity for immediate endeavor. So should you and all of us, now that the responsibilities of patriotic endeavor are taken from our shoulders, put those same shoulders to the Wheel of Progress and build up immediately—as soon as possible—that wrong suffering us and ours. So I say to you, boys, come on, get together, pull and tug as you never did before, and thus show your respect and deep appreciation for the noble souls who died for us."

—From a letter to salesmen from A. G. Pierce, Managing director, Autographic Register Co. of Canada, Montreal.

Export Possibilities in Paper

Manufacturers of Fine Papers Anticipate Big Demand from Oversea Markets

A lively enquiry for export is being experienced by the Rolland Paper Co., Limited, Montreal. "These enquiries," states R. H. Ecclestone, advertising manager, "come from all parts of the world, and some of them from quarters where, we believe, permanent trade can be established. This business, if maintained, will lead to greater production and eventually tend toward a reduction in the cost of manufacturing, enabling Canadian mills to compete still more successfully. We may say that during the war we have been carrying on our business with the idea in mind that opportunities would still be greater after the war, and we see no reason to change that idea now."

Will Increase Production

Knitting Company Intends to Enlarge its Output to Offset Possible Drop in Values

In order to keep pace with the demand for certain classes of their goods, Mercury Mills, Limited, Hamilton, are adding additional machinery. Plans are under consideration for the addition of new lines, but these may be held up on account of the impossibility of getting machinery of the type required for a year or so yet. In order to provide for the unavoidable, though gradual reduction of prices, it will, they point out, be necessary to increase the volume of production to maintain values. They have started in a small way to do an export business and aim to develop this as much as possible.

Plenty of Work in Brantford

Survey of Local Industries Shows Lots of Business for Another Year at Least

In Brantford, a careful survey has been made of all the factories and, according to Charles G. Ellis, of the local Board of Trade, the unanimous report is there is plenty of work and business for another year. Certain industries have been starved for lack of help, and the goods they make are badly needed all over this country and in many others. The biggest problem in Brantford is a lack of houses. The matter is being taken energetically in hand, and in itself will employ a great many men in the building trades.

Courage is Needed

By Lieutenant-Colonel R. W. Leonard

While there may be some slight temporary dislocation due to the re-arrangement of industries and the sorting out of men to do work which they are not now employed at, I am of the opinion that this should not be of long duration or of a serious character, provided the employers and employees have the courage to promptly change over to new industries and a reasonable attitude is adopted by the workmen.

Contracts For a Whole Year

Port Arthur Shipbuilding Co. have Assurance of Business Enough to Keep them Busy in 1919

Definite assurance of sufficient contracts for boats to keep their plant busy during the whole of 1919, is the encouraging statement of A. B. Conmee, secretary, Port Arthur Shipbuilding Co., Limited, Port Arthur. At present they have orders for completion of 3 trawlers, each 125 ft. long x 23 ft. 4 in. beam, 15 ft. molded depth, 294.5 gross tons; and 2 freighters, 251 ft. long x 43 ft. 8 in. beam x 23 ft. molded depth, 3,400 deadweight tons. They will erect next year a three-storey addition, 20 x 42 ft. to brick office building; an addition 40 x 90 ft. to solid brick, steel-trussed foundry building; new overhead crane for building berths and new oil angle and plate furnaces to take the place of coal furnaces now in use.

Demand For Paper Maintained

Manufacturers of Machinery Surprised at the Way Business has Continued

A good gauge of industrial conditions is supplied by the machinery industry. An active demand for new equipment implies the improvement and expansion of manufacturing facilities. In this connection, the testimony of T. A. Hollinrake, president, the A. R. Williams Machinery Co., Limited, Toronto, will be of interest.

"In our business," says Mr. Hollinrake, "we have not experienced anything like the depression which was at first anticipated, and there is a distinct tendency among the industries which we serve to swing gradually back into peace-time activities, while certain other industries, which have been to a certain extent quiescent, are beginning to display an activity which is distinctly reassuring.

"Planing mills, furniture factories, handle and woodenware industries are looking around for new and improved equipment. Knitting mills, woollen mills, flax mills and kindred industries are active, and on the whole the general outlook does not give any cause for anxiety."

New Industry For Canada

Needles for Knitting Machines, Formerly Made in Germany, Now Being Produced in Canada

Local capitalists in Georgetown, Ont., have recently organized and started a new industry for the manufacture of latch needles for knitting machinery. The company is known as Canada Needle Works, Limited. A new brick building, 36 x 80 ft., has been built and equipped with specially designed machinery of local manufacture. Twenty-five skilled help are employed, and orders already booked are more than enough to keep the factory running overtime for six months to come.

Previous to the war, Canadian knitting mills were dependent to a very large extent on needles imported from Germany and the United States. In fact the shortage of knitting needles has been much more acutely felt than even wool or dye stuffs. There is scarcely a Canadian mill but has had a considerable percentage of their machinery standing idle for the want of needles, and it is felt that there will be an abundant demand for them during the years to come.

Great Future For Dairy Products

Dearth of Dairy Herds in Europe Bound to Create a Splendid Export Trade for Canada

That Canadian manufacturers of dairy products will have an important outlet during the next few years in Europe, is pointed out by S. B. Trainer, secretary-treasurer, Canadian Milk Products, Limited, Toronto.

"When you consider that Europe is practically without cattle, we can realize that it is going to take many years to rebuild dairy products business in Europe. In view of it taking from four to six years to build up a dairy herd as a business proposition, you can see that until the cattle are replaced in Europe the two countries of North America have got to make up the shortage, and the demand for dairy products for Europe. Canada is especially fitted to supply the dairy products needed.

"Although we have not exported milk powder during the war for use in Europe, we shall undoubtedly be able to take advantage now of the shortage of milk products in Europe and do an increasing export business with Europe.

"In other words, every business in Canada that has to do with dairy products is looking for increased prosperity for many years to come, and by the time the European demand is supplied by home production, the development of the demand in Canada will be increased, and the population of Canada will have increased to a point that the development of the manufacturing of dairy products during the next many years in Canada can be taken as a healthy development, and not a development depending upon a few years of temporary European demand."

Employment in Paper Mills

Canadian Pulp and Paper Association Reports that there is Room in Industry for Many Men

The Canadian Pulp & Paper Association headquarters recently received a request from the Hon. G. D. Robertson, Minister of Labor, for information as to the number of additional men the industry could find employment for this winter, in view of the discontinuance of war industries, and the certain dislocation of labor conditions as a result thereof.

Normally, the industry gives regular employment to about 25,000 mill operatives and office employees, and, at certain seasons of the year, to about as many more woodsmen. For the past two years labor, especially woodsmen, has been scarce and difficult to get. Work can probably be found for several thousand men at the present time, provided they are of the right kind. The industry has contributed about 2,500 men to the military service. Most of these men were assured by their employers that their jobs would be restored to them when they returned to civilian life. They constitute a first claim upon the manufacturers. But it will be some time before many of these men will be available, and in the meantime officers of the Association have notified the Labor Department that the mills are prepared to give employment to every man they

can possibly make room for, preference being given to those who have had previous paper mill experience.

Several of the mills, it is reported, will seize the opportunity to overhaul their machinery and to put their plants on a maximum of efficiency basis, which has been impossible lately owing to the shortage of labor and the necessity of working at high pressure to keep up with orders. In this way employment will be found for several hundreds of additional men, not necessarily experienced in wood-cutting or paper-making. Some of the mills also contemplate reviving schemes for enlargement and expansion which were projected before the war, but have since been held in abeyance.

Big Developments in Halifax

$1,500,000 to be Spent on Improvements to Shipyards and 2,000 Men to be Employed

An encouraging report on the prosecution of a big industrial undertaking, which will give employment to many men, comes from R. M. Wolvin, vice-president and managing director of Halifax Shipyards, Limited, Halifax, N.S. Mr. Wolvin writes:

"We have very large improvements under way, and I would say probably fifty per cent. completed. The expenditure still to be paid on these improvements will run about $1,500,000, and consists of the erection of power plant, platers' sheds, machine shops, and the usual miscellaneous smaller buildings of a shipbuilding plant. We have still to complete our building berths and obtain machinery for operating on new construction.

"We are to build, under contract with the Canadian Government, four large ocean steamships, in fact the largest ones being built in Canada. We are in hopes that the steel for the first of these boats will be in our yard very shortly, and construction will be immediately started with the facilities that we have.

"We also are doing a very large repair business, and contemplate a joint operation of ship construction and repairs that will permit us to always have a very large supply of men for the quick repair of vessels, and undoubtedly increase the ship repair business in Canada to a great extent.

"At the present time we are only working about 350 men, but I fully expect that we will have at least 800 men at work by the first of January, and that this will be gradually increased until we will have at our Halifax plant probably 2,000 men by June, 1919.

"We are also operating the slipways at Dartmouth, and, in addition, have taken over a large machine shop adjoining this property, and are undertaking some extensive repairs at Dartmouth. We have plans to increase the capacity of this plant, and believe our future developments will be such that we will require about 300 men at this plant.

"The labor we require is to a large extent the class of men who have been employed in munition plants, and by this increase in our working force we hope to assist in taking care of the labor left unemployed by the cancellation of the munition contracts.

"One of the great problems in Halifax is housing our employees. The explosion wrecked a large part of the city of Halifax in 1917, and only a small portion of this damage has been repaired, and the city still has a great amount of new construction before they will be able to take care of the people who have always resided in the city. Our shipbuilding enterprise there will, of course, bring in a lot of new labor, and there is great need for a big increase in the housing facilities, and I expect that great efforts will be made this next year to meet the requirements."

Much Business For Textile Factories

Peterboro' Manufacturer in Interview says Plant has Orders Ahead for a Least a Year

Although the munitions industry is on its last legs, the textile factories report the probability of night shifts in the near future to meet the increased business arising out of the changed conditions. This is the general report in the trade and there are intimations that fresh activities will be felt as production passes from a war to peace basis.

J. W. Worth, of the Bonner-Worth Company, Peterboro', told the local press recently that while it was early to attempt a survey of the future through the period of transition, the present outlook was encouraging.

"Our instructions indicate that the war contracts will extend into March," Mr. Worth said. "The soldiers have to be clothed until they come home and are discharged. Hence there is no likelihood of the cancellation of textile contracts with the suddenness of the end of shell manufacturing. Beyond that, our factory has orders for at least a year, so there is no fear of idleness. If we will not require overtime, our employees are assured of full-time work."

Reasons Why Prices Will Not Decline

By F. W. STEWART

Managing Director, Cluett, Peabody & Co. of Canada

THE European countries are absolutely destitute of all classes of merchandise and foodstuffs. Germany, Belgium, France, Italy, Serbia, Russia and other war-devastated countries will require enormous quantities of supplies, which will likely take years to produce. The mills in the United States and Canada are sold up for months ahead for domestic trade at contract prices, which cannot be changed, and this merchandise will not reach the manufacturer and wholesaler until six to twelve months after November 15th.

The European countries will be able to supply very little of their own needs for possibly a year or two, and this continent will be looked to to produce a large per cent. of what will be required.

I will cite instances which have come to my attention during the past two or three days:

Cotton thread agencies cabled instructions recently to increase prices 33 1-3 per cent.

A hosiery mill in the United States received a cancellation from a firm for 60,000 dozen. They were told that if the order was cancelled, their name would be taken off their books, and advised their customer to think it over. Next morning the cancellation was confirmed. In three days a request was made to reinstate the order, the firm being willing to pay $600.00 additional to have it done. They were told that the order remained cancelled and that the name of the firm was off their books for all time. They were also informed that the goods had been resold at higher prices.

Samples of shirting materials were submitted to us recently by an agent representing a well-known English manufacturer. The qualities were much below our FD range, and

we could not price them at less than $36.00 to $40.00 per dozen.

It is not difficult to realise how far to-day's prices must recede before they will get anywhere close to normal.

Some merchants will be inclined to cancel orders with expectation of being able to buy at lower prices when in immediate need of merchandise. Such merchants will be making a serious mistake for two reasons: they will likely have to pay higher, rather than lower prices, and the firms who will not stand by the orders which they have placed will be blacklisted by manufacturers and wholesalers as concerns who will not be worthy of the best consideration of the companies from which they purchase their requirements.

Uuquestionably some manufacturers, principally the smaller ones, will throw their stocks on the market or dispose of them to large departmental stores.

These, I believe, will be quickly absorbed, and when these manufacturers go into the market to purchase further supplies, they will undoubtedly find that they will pay more for them than they have possibly secured for their manufactured stock.

Viewed as a whole, there is nothing in sight at the present time which will tend to lower prices.

A Banker's Estimate of Canada's Future

By C. W. ROWLEY
Canadian Bank of Commerce, Winnipeg

FORTY years ago that great Canadian, Sir John A. Macdonald, said: "You cannot check Canada," and I think we Canadians cannot, save by a universal upheaval of the earth's surface, be deprived of the two hundred or more million acres of agricultural land which we possess, of our unlimited forests, coal and mineral deposits of all kinds, untold water power, our unlimited supplies of fish in the Atlantic and Pacific oceans, Hudson Bay and inland fisheries (Manitoba has untold assets in respect to fish and water power as yet untouched); the development or exploitation of any one of which on a large and businesslike scale, would support five times our present population.

Above all these there exists throughout Canada the spirit of confidence and faith in the country which many call the spirit of optimism, which no passing storm can kill. When one considers that we went into the war after two years of poor crops and the stress and strain of the over-inflation of real estate values—went to bed one night at peace with the world and woke up in the morning with a war on our hands, with five minutes in which to decide what we were going to do—thank God we decided to run that grand old flag with the Christian crosses in it, that has stood and stands for so much —the Union Jack—up to the masthead and nail it there and throw the hammer away; and from that day to this Canada has gone steadily forward, let us hope, in the eyes of God and man. One is safe in saying that we and the world have unlimited confidence in our future—confidence in the capability, capacity and energy of those in authority, and of our citizens, our industrial resources and the fundamental soundness of our finances and business conditions, and our present and future prosperity and certainties.

Times of depression will come and go and come again, but with sound, common, horse sense in those in control of our Dominion and provincial affairs, as well as the heads of our large financial and manufacturing institutions, our agricultural and labor leaders, confidence will remain and withstand all, for the reason that the future of this country promises to equal the record of any other country. Last but by no means least in the development of the country will be the returned soldiers. They will come back with a very much increased knowledge of the world, its ways and requirements, and no doubt with a much enlarged vision, and those brave crusaders who are so incapacitated to "carry on" as of old will be given every facility to take up some other vocation; and they and their physically fit comrades will be great factors in enlarging and building up a British Canada on sound foundations.

Pacific Coast Province Has Bright Outlook

By HUGH DALTON
Assistant Secretary, British Columbia Branch

BRITISH Columbia is perhaps more favorably situated than any other part of Canada, inasmuch as our vast stores of natural wealth will be drawn upon by Europe, but in addition to that the great market of the Orient is opening more and more to Canadian and American traders and manufacturers, and should be, and will undoubtedly be, seized upon by them.

We have huge quantities of raw materials which will be necessary for the reconstruction and feeding of Europe. The products of the mines, of the forest, and of the factory will be necessary for the rebuilding of the devastated areas, and the products of our vast agricultural areas will be required to feed the starving populations of Europe, and our live stock for the reviving of that industry as well.

British Columbia possesses an almost inexhaustible supply of timber. Her fir lumber, long before the war and during the war, was shipped overseas in large quantities, and British Columbia's record in the production of spruce for aeroplanes is too well known to need mention. British Columbia fish, both packed and frozen, is in demand in many parts of the world. Pulp and paper from British Columbia mills is finding an ever-increasing export market, and the existing pulp and paper industries, as well as those under construction, have a prosperous future in sight. British Columbia copper and zinc deposits are being further developed every year, and among other minerals now being mined in British Columbia, are molybdenite, cobalt, tungsten, gold, and platinum, not to mention vast deposits of iron ore of various formations.

We are assured in British Columbia of a measure of stablizing activity from one huge industry, viz., steel shipbuilding. The British Columbia yards will be engaged at least for the next year on Dominion Government orders, and assurances have been given of further orders when the present ones are completed.

Demands will be made upon our lumbering industry greater than ever before. As already stated, Europe will take huge quantities of British Columbia fir. The prairie provinces have always been an excellent market and will continue to be

so, and the great Orient and the Australasian market will absorb further large quantities of our lumber, so that the outlook for the lumbering business is certainly bright.

In trade, British Columbia is the Pacific outlet for the whole of Canada—the great manufacturing centres of the East must pour their products through British Columbia to the Oriental market, so that, with the assurances of the Dominion Government of the re-establishment of Pacific shipping, this trade expansion seems assured.

We have assurances from the Dominion Government and from the expressed policy of all leaders of public affairs in Canada, that the Dominion Government will, as soon as it is practicable and possible, open up extensive public works that have been delayed for the period of the war, and in this way absorb a large portion of the men returning from the front as well as those who have been diverted from the munitions factories and other war work.

There are needed but two things to absolutely assure the prosperity of Canada during the next few years, and these are:

First a more active interest on the part of those in authority in providing facilities for manufacturing in Canada of the raw materials which we produce, into the finished article, either for home consumption or for export, instead of, as has been pointed out by Sir John Willison and others, exporting our raw materials in their unfinished state and buying them back in the finished state, leaving it to the foreign manufacturer to reap the benefit of the higher price for the finished product.

The other imperative requirement for Canada's stability is a sane appreciation of the rights and duties of the two great classes which go to make up the industrial life of the country, viz., employer and employee. The experience we have passed through during the war period of handling large industrial problems under emergency conditions has demonstrated the urgent need for employer and employee getting together and overcoming difficulties that have hitherto seemed insuperable.

With the solution of these two problems, the prosperity of Canada as a whole, and of British Columbia in particular, seems assured.

Why the West Expects Era of Prosperity

By G. E. CARPENTER
Assistant Secretary, Prairie Provinces Branch

UNBOUNDED optimism and faith in the future of Winnipeg and Western Canada for a period of great industrial activity and prosperity for all citizens was the keynote of interviews with manufacturers in this city during the past month.

While several plants are still busily engaged on munitions, managements are already making plans for reorganizing their businesses for other work so as to continue operations when these orders are cancelled with as little dislocation as possible, and with a view to furnishing employment for most, if not all, of their men.

With such large agricultural areas contiguous to Winnipeg demanding large quantities of diversified farm implements, it is natural that some attempt should be made to enter upon the production of such articles for this market, but uneasiness as to possible action upon the tariff in respect to agricultural implements may prevent any large undertaking in this direction.

The report that a canvass of soldiers overseas shows that 100,000 men have expressed their desire to take up agricultural pursuits, if this is followed up by some form of Government assistance, means that there will be a strong demand for farm machinery and supplies of all kinds, which the Government will no doubt see is supplied by Canadian goods, thus in turn providing employment for Canadian workmen.

A prominent Winnipegger has oft been quoted as saying that railway construction might be taken as a barometer of business conditions in Western Canada, and whether this be the cause or simply a coincidence, it is true that prosperous conditions in the prairie country have gone hand in hand with railway construction works. Thus the announcement in the press that arrangements have been made by the Government with the railways for resumption of construction work will be welcomed, as it will require large supplies of material and work for many thousands of men. While no announcement has been made by railways of intended work this summer, it is understood that a large programme of maintenance, improvements and construction is being planned.

Municipal construction work of all kinds has been at a standstill for over four years now and there is no doubt that many undertakings planned at the outbreak of hostilities, on which work was stopped or never undertaken, will now be gone ahead with. In fact, press dispatches from Ottawa place the amount of such work at $10,000,000. These works will also require a large number of men and much material, which Canadian plants and workmen will be able to supply.

Coupled with all this is the fact that the output of many factories has been materially restricted by embargoes on raw materials and regulations upon the quantity which might be made. With the cessation of hostilities it is expected that many, if not all of these, will be removed and operations resumed upon a larger scale.

In view of all these conditions, manufacturers in Winnipeg look forward with confidence for an industrial activity unheard of in this country, and predict that in place of there being a surplus of unemployed labor there will be a good demand for all classes of workmen.

A Message of Optimism from the Border Cities

By F. MACLURE SCLANDERS, F.R.G.S.
Commissioner, Border Chamber of Commerce

THERE is no lack of optimism here. On the contrary, and in my many years experience in one of the most progressive centres of the Canadian West, I never saw there, at any time, anything like the splendid, solid, logical degree of optimism which now pervades these munuicipalities. And there is such substantial and obvious cause for this growing optimism; for, even during the war our industrial development by no means stagnated, but, on the contrary, has been quite remarkable, some thirty new industries having either located or purchased their sites within the past fifteen months. Quite a number of these are very large and important, while all of them are distinctly desirable; and, it is interesting to remark that none of them has either asked for, or received, any inducements whatsoever.

Among the larger of our new industries is the General Motors Corporation, of Detroit, which will start building next

spring on a thirty-eight acre site; the Motor Products Corporation of Canada, which will build next spring on a twelve acre site; the Commonwealth Chemical Company, a million-dollar concern, which will erect a large plant at Sandwich. In addition, there are several very large and very important industrial propositions which we are not, as yet, in a position to discuss.

One thing we can at least say—that if there ever was any doubt as to this being the automobile manufacturing centre of Canada, such doubt is likely to be laid finally and forever within the next few months. In addition, it also seems highly probable that these municipalities will, ere long become a highly important tractor and agricultural implement centre. The operation of the Canadian Steel Corporation will render the foregoing prediction wholly logical. At any rate, and on every hand, we are conscious of the tangible and most encouraging shadows of coming events. In the very air there are great things for us. Pessimism on our part would be the most absurd thing conceivable.

You ask as to new buildings or houses to be erected, and when I tell you that within the past six years the population of these municipalities has increased fully 96 per cent., you will agree that a very considerable building programme must be undertaken just as soon as labor, material and other conditions will permit. Had we five hundred new, vacant dwelling houses in these Border Cities to-day, we could fill them immediately. Lots of our people are staying in Detroit because suitable accommodation is unavailable here. *Our communities are filled to their present capacity.* In the building line we have a great leeway to overtake, and we realize the importance of doing this just as soon as we can.

As to plant extensions, these are going on all the time. Almost the whole history of our industrial life has been small beginnings, with subsequent extension after extension.

In the above connection, it is well to state that we did not, by any means, concentrate our industrial effort on the production of war material. On the contrary, we continued along the line of our normal products. As a result, we will experience very little of that industrial embarrassment which is inevitable in the case of so many points where war material has absorbed almost their entire activities. The resumption of peace production is, in no sense, a serious matter, so far as we are concerned. For a good many months now we have been out after foreign trade, and have really no reason to complain. Meantime, we are all just as busy as can be. We have absolutely nothing to grumble about; on the contrary, as already stated, there never was ampler or more substantial cause for the most unwonted degree of optimism that is all-pervading here.

Volume of Business Will Continue Large

By C. A. GRAHAM

The Great Western Garment Co., Limited, Edmonton. Vice-President Edmonton Section, Prairie Provinces Branch

FRANKLY, I should feel great hesitation in expressing a view on so complex a question as the outlook for the early period of peace, in view of the diversity of opinion that exists among the biggest minds in the country; but, however humble my opinion may be, it is quite definitely formed, and will influence my thought until I see good reason to modify it.

Just let us look back to the early days of the war, when the wise ones were telling us that business could not stand the stress of war, and how the large financial minds proved, beyond our power to contradict, that the war could not last more than a few months, because the money of the world would be exhausted. Then came the same array of wise prophets who told us that Western Canada would fall to pieces immediately on a declaration of peace, because being primarily an agricultural country she must fall a prey to the enormous accumulation of all kinds of cereals in Russia.

Following this marvellous display of foresight were those military experts who claimed that it would be impossible to win a military victory in the field, and that it would be wise to conclude a peace with our enemies on any terms that might be regarded as a draw.

Many other such wise prognostications have filled the press for four years, and each in its turn has been proved to be absolutely at variance with the facts, until now it seems as though one man's guess is as good as another's.

Having regard for the opportunity we all missed in 1914 by rushing to cover and sacrificing everything of value in an endeavor to get cash, let us keep our feet on the ground and approach the peace days with clear heads and some trace in our hearts, of the courage which our brave men have displayed, with such excellent results, for four years of war.

In my opinion there will be no immediate reduction of present prices, the markets are bare and must be replenished. The only condition that brings about reduction of prices and consequent hard times is over-production and every one begins to economise and save, and shortly the production begins to swing the other way, and as we use up the over-plus, manufacturing takes on new life and the whole fabric begins to reknit, and so it goes from one period to another.

True, we have had great prosperity on this continent for three years, but it was not the result of producing peace-time requirements, and consequently we find ourselves entering a new era with capital to carry on the necessary developments, and markets ready to absorb their products.

Note carefully, however, that I in no sense agree with the theory of a business boom, for always present to temper our judgment will be the possibility and ultimate certainty of a receding market.

Summed up briefly, I would say that high prices must prevail for some considerable time, and volume of business will continue good for 1919 at least. After that prices should begin to recede slowly to something approaching the pre-war status. This, however, will take some years, and should not be difficult or disastrous for the merchant or manufacturer.

New Industry for Lakefield

Large Lumber Mill to be Erected by Armstrong Lumber Co. of Port Arthur

Property near the Government wharf at Lakefield has been bought by the Armstrong Lumber Company, of Port Arthur, and operations on a large lumber mill will be commenced immediately. The site, which was formerly the Lillicrap-Tate Lumber Mill, burnt in 1912, was latterly the property of the Leaman's Company. Recently the Armstrong Lumber Company bought large timber limits at Jack's Lake, near Eel's Creek, and a camp has already been pitched.

The building of the lumber mill will mean the third important new industry started in Lakefield in a few months. A glass-cutting factory, operated by Mr. W. Legott, was opened some time ago; while the new steel works in the old cement works building commenced work this month.

Completion of Winnipeg's New Aqueduct

The Important Part which a Supply of Soft Water Will Play in the Development of the Industries of Greater Winnipeg—Project Being Completed at a Cost of Over Thirteen Millions



Section of the Aqueduct under Construction

By R. D. WAUGH

Chairman of Commissioners, Greater Winnipeg Water District

GREATER Winnipeg looks for colossal industrial results from a combination of her cheap hydro-electric power and her big new soft water supply which will be a boon to all citizens, but especially to the manufacturers. The new Greater Winnipeg Board of Trade, realizing the attractive advantage now secured, will go after everything in sight to increase the manufacturing industries at the gate-way of the immense territory between Lake Superior and the Pacific Coast—the big new west-half of Canada.

The Old Water System

Before the end of 1918, Greater Winnipeg, which comprises the city of Winnipeg, the city of St. Boniface, the town of Transcona, the municipality of St. Vital, part of the municipality of Fort Garry, part of the municipality of Assiniboia, part of the municipality of West Kildonan, and part of the municipality of East Kildonan, will have abandoned its present artesian well system of water supply and will be enjoying, for the first time in its history, the product of one of the finest water systems in the world. The water will be supplied at the same price to all of the municipalities, the basis of price being the cost of maintenance, operation, and management of the undertaking. Each municipality provides for the distribution of the water within its own limits.

The present artesian well system was placed in operation in October, 1900. This system has been gradually developed as necessity required until the pumping capacity is now about 14,000,0000 gallons in 24 hours, and the combined capacity of the three reservoirs is about 24,000,000 gallons. The average daily consumption of water at the present time (1918), is about 11,000,000 gallons.

The present supply, although very pure and palatable, is very hard, ruinous to boilers, plumbing and heating apparatus, costly in soap and washing compounds, injurious to fabrics and unsuitable for many manufacturing industries which might be attracted to Winnipeg by the cheap hydro-electric power and a plentiful supply of soft water.

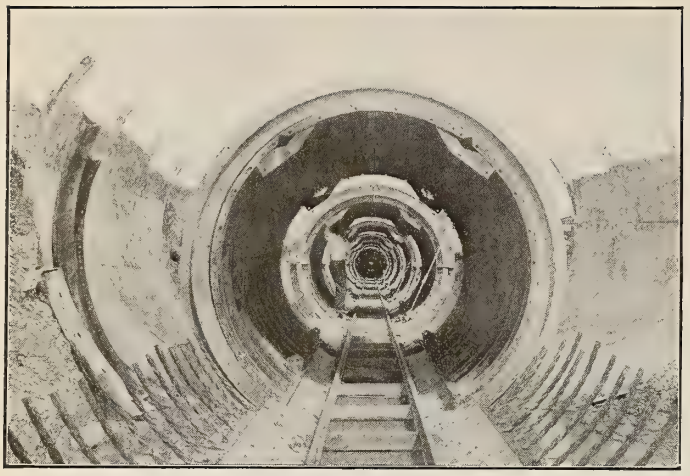
The question of a permanent visible supply of soft water for the City of Winnipeg has been agitated with more or less vigor for many years, it having been realized that, if Winnipeg continues to grow as rapidly in manufacturing and commercial importance as it has done in the past ten years, it would not be long before the present well supply would be insufficient and unsuitable for the city's needs.

Winnipeg secured the favorable opinion, contained in three reports, of no less than seven of the most eminent water supply engineers on the American continent, before undertaking the present Greater Winnipeg water supply scheme. After an exhaustive study of the problem, Shoal Lake, a branch of the Lake of the Woods, was chosen as being the most feasible. A practically inexhaustible supply of good water can be obtained from this source by a gravity line of 100 miles in length.

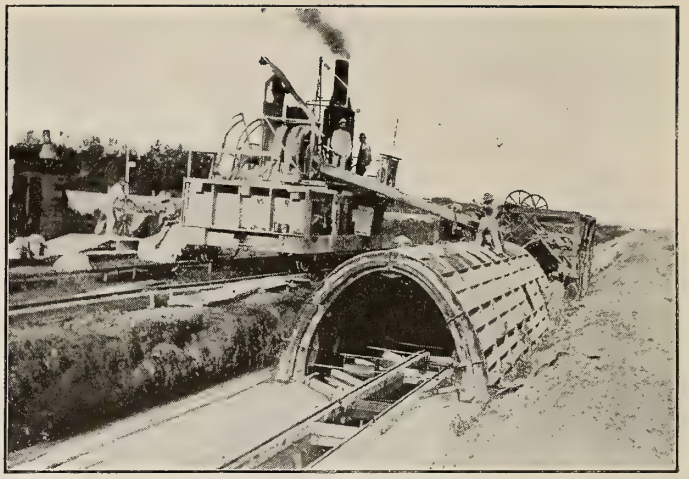
Reports on Water Supply

The first consideration of the various reports on Winnipeg's future water supply were of course quality and quantity.

The Consulting Engineers of the 1907 Water Supply Commission, namely, Messrs. James H. Fuertes, R. S. Lea, J. E.



Section of Circular Reinforced Concrete



Pouring One of the Arches

Schwitzer and George C. Whipple, state of the present city well supply:

"Chemically, the water is decidedly unsatisfactory. It is very hard and very saline, properties which make it unpleasant and expensive for domestic use, and unsuitable for use in boilers and many industrial processes.

"The use of hard water is not only a great inconvenience in the household, but is also expensive, as it necessitates the use of large quantities of soap and washing powders, with the consequent destruction of fabrics washed in the laundry."

The same engineers say of Shoal Lake:

"The water is very soft in comparison with the water at present supplied to Winnipeg. The water, in the absence of unusual conditions may, therefore, be termed an excellent one for domestic, boiler and general manufacturing purposes.

"The water of Shoal Lake at Indian Bay is soft. Its chlorine is a negligible quantity. It is practically uncontaminated, as the entire regions for miles around is uninhabited. From the sanitary standpoint filtration is not now required, as the natural water is reasonably safe and wholesome.

"Considered from the standpoint of the quality of the water in its natural condition and taking into account the use of the water for all purposes, the Shoal Lake water is unquestionably the best source of supply."

Of the present supply Professor Schlichter said:

"The present water supply of the City of Winnipeg from the well system is so highly undesirable and expensive, on account of its high mineral content, that it should be abandoned at the earliest possible date. The water is excessively hard and incrusting, and is corrosive and destructive to an unusual degree. The expense that this water now causes the citizens of Winnipeg by its destructive influence on plumbing, boilers, heating plants, etc., and increased cost of fuel, soap, compounds, and the destruction of woollens and other laundered articles, would well pay the interest on $15,000,000 to $20,000,000 as the City Engineer has tersely remarked in his printed report—'The water in its natural condition is much too hard for general domestic and boiler use.' The water is expensive to soften and after treatment it is still hard water, and more than that, still retains all of its corrosive qualities. The water is not only destructive of wealth, it is a handicap and a serious drawback to the proper operations of many industries, and a hindrance to the introduction of new industries. The following typical industries would be seriously handicapped by the present supply: meat-packing industries, canning industries, woollen mills, starch and kindred potato product industries, and industries, of which there are many, which require the use of live steam, or drying processes, or distillation, or kiln-dried material, or the application of heat for digesting or liquifying or combining a variety of commercial substances. There is no industry that would not be favorably affected by an abundance of pure soft water, and to many it is an absolute essential."

Of the Shoal Lake Supply he said:

"I visited Shoal Lake on August 24th, 1912, and inspected the various points in which intakes have been proposed. I also made comparative tests of the color and turbidity of the water at various points by sinking a white disk to invisibility; I also determined the temperature of the water at various places and at various depths, and took samples of water from these various zones. The date of my inspection was especially favorable, as I undoubtedly saw the lake at the time when the growth of algne, etc., is at the maximum. The amount of suspended matter in the water was surprisingly small. The amount of pelagic life in Shoal Lake is very small, due in part to the clean, rocky character of its shore, and of its watershed. The clean Laurentian granite and schists have collected together a body of water of exceptional softness and



A 45-foot "Pioneer" Arch on Continuous Invert

purity. The water from Shoal Lake would require no treatment. No fear need ever be in mind that the sanitary quality of the water would be poor at any time in the future. The shores of the lake are hard rocks of the Laurentian series, entirely unfitted for agriculture, and the country thereabouts must remain in its present wild state indefinitely. There need be no fear of the growth of cities or towns upon the shore of Shoal Lake. The Lake of the Woods constitutes an enormous reservoir of clear, pure and soft water, situated 300 feet above the City of Winnipeg, within 100 miles of the city.

"The City of Winnipeg is no longer merely the supply point of the north-west prairies or merely the capital of a province. It has entered the class of world cities and has begun to direct the commerce and industries of a vast territory. Within the small group of cities of this class, pride as well as self-interest may well be appealed to. The city cannot afford to be committed to a temporizing or inadequate policy, or to permit further postponement of the settlement of the matter on a large and adequate basis."

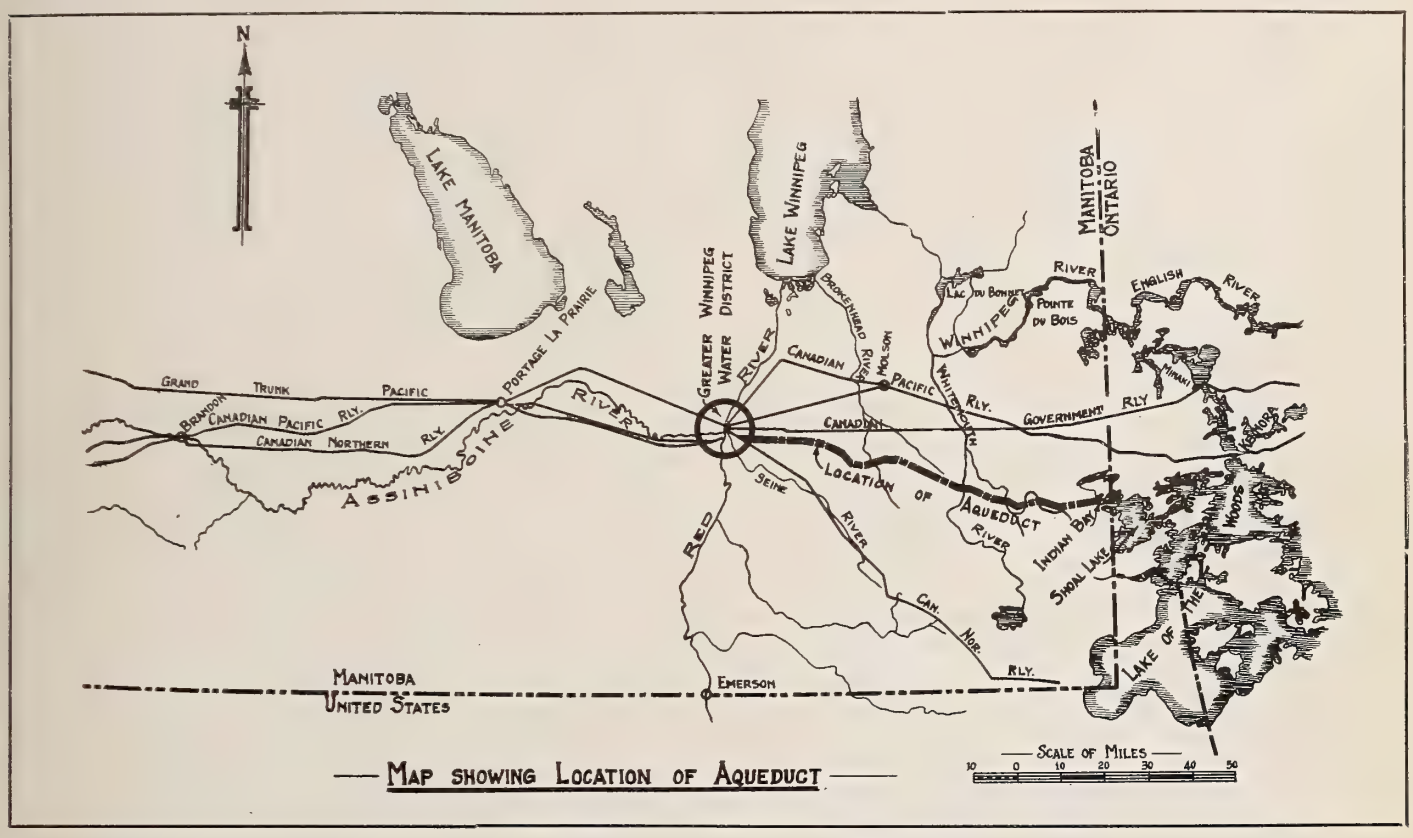
The report of Messrs. Rudolph Hering, Frederic Stearns and James H. Fuertes said of the Shoal Lake supply:

"The water of Shoal Lake was, when we examined it, of excellent quality for domestic and manufacturing purposes, being soft, practically free from contamination, without noticeable color, free from odors, and of an agreeable taste. The results of recent examinations of the Shoal Lake water, and all of the local conditions, indicate that the occurrence of bad tastes and odors in the water, from growths therein, should be infrequent, and may never occur at all. Should such trouble occur in the future the opportunity to correct them by suitable treatment may be availed of when necessary wihout interrupting the supply of water to the city or making expensive changes in the works as built."

The report on the laboratory investigations made by Mr. A. Blackie, city analyst, says:

"Shoal Lake water contains three parts of chlorine per million. The city's present supply and all water from well sources in the neighborhood of Winnipeg is very high in chlorine, the city wells giving about 250 parts and other wells running up as high as 500 parts per million. It is this chlorine in the water that causes the corrosion of steam fittings, etc. It is not possible by any known process to remove chlorine from water."

The most serious damage produced by hard water in industrial operations is from the scale deposited in steam boilers and from the waste of soap in washing. Scale in boiler prevents the easy passage of heat from the fire to the water and shortens the life of the boiler because of the excessive temperature to which the steel must be raised in order to force the heat through the scale to the water. The amount of extra fuel required to evaporate water in a boiler which is coated with scale varies with the thickness and character of the scale and with the rate at which the boiler is worked.



MAP SHOWING LOCATION OF AQUEDUCT

Elwood Hendrick, an eminent analyst and chemical authority, says, in a recent publication: "We need not enter into a discussion of the nuisance that hard water is to boilers. The scale ruins the tubes and it is such a poor conductor of heat that it runs the coal consumption away up—*one sixteenth of an inch of scale on boiler tubes doubles the consumption of fuel.*"

If, on the average, the scale in the tubes of boilers for power and heating throughout the Greater Winnipeg water district was only thick enough to cause such a loss of heat as to increase the consumption 20 per cent., this would represent an over expenditure of $500,000.00 per annum.

With the advent of Shoal Lake water certainly no further formation of scale will occur, and the action of such water should remove a considerable portion of that already formed.

By actual test a saving of fifty per cent. in soap and washing compounds results from the use of Winnipeg's new soft water supply in washing fabrics.

The work was begun in 1913 and has been carried on continuously during the summer months. It will be completed in a few weeks.

The estimate of cost of the work was approximately $13,050,000, exclusive of interest during construction and purchase price of necessary lands. Notwithstanding unestimated and wholly unforeseen war conditions, tending to increase the cost of the work, the actual construction will be completed very close to the original estimate and within the estimated time.

The evolution in a few years of Winnipeg's water supply system from a few wells, whose combined capacity was measured by barrels, to the very best and most modern system available, capable of delivering 85,000,000 gallons per day of the finest soft water, is another indication of the rapid growth of Greater Winnipeg, and an evidence of the faith which our people have in the future.

Cheap Power

In a report recently published by the Water Power Committee of the Joint Board of Scientific Societies, in London, England, a statement is made that Canada possesses more than one quarter of the entire water power capacity of the whole British Empire. To enable the Empire to recover with any degree of rapidity from the financial burden imposed by the war, it will be necessary to develop in a much greater degree than heretofore its latent resources, and for this an ample supply of cheap energy must be available. It must be remembered that while solid and liquid fuels are convenient to handle and possess many advantages, their supply is strictly limited and their ultimate depletion is certain; and long before the supplies are actually exhausted their cost is sure to rise to a much higher level than at present. For this reason, the utilization to the ultimate possible degree of the water powers of the Empire becomes of paramount importance.

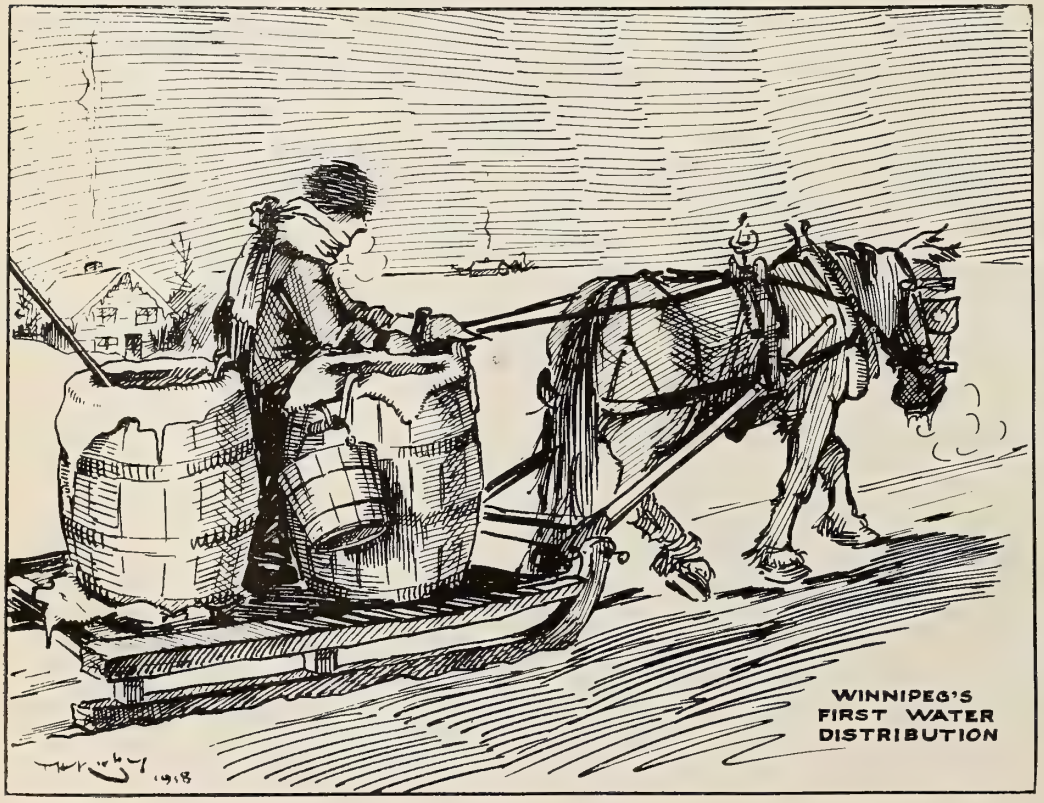
Winnipeg's fortunate venture into the field of hydro-electric development has brought forcibly to the minds of its citizens the economic possibilities of the Winnipeg River. This river, whose entire course lies within one hundred miles of the City of Winnipeg, provides seven or eight power sites, all of which are available for hydro-electric development, and whose total horse-power exceeds half a million, an amount considerably in excess of the total requirements of the City of Chicago to-day. These water power sites are not only within close proximity to Winnipeg, but are all capable of development at a cost which is unusually low. The average capital cost of these combined developments, which will provide Winnipeg in the future with over half a million horse-power, is estimated to be $90.00 per horse-power, delivered in Winnipeg. This cost means that coal would have to sell in Winnipeg for $1.25 per ton in order to compete with this hydro-electric supply on an equal basis.

In this connection the following excerpt from annual report, 1915-16, Dominion Water Power Branch, J. B. Challies, C.E., Superintendent, is significant: "This means that there will eventually be as much, if not more, power available from the Winnipeg River than is now being developed at Niagara. What this represents to the City of Winnipeg and the Province of Manitoba, can only be realized by one who understands the tremendous import of the electro-chemical and electro-metallurgical industries of world-wide fame now firmly established at Niagara, and by one who has a proper conception of the significance of the use to which Niagara is now put throughout the western portion of the Province of Ontario by municipalities, private companies, and through the auspices of the Ontario Hydro-Electric Power Commission.

"The fortunate power situation on the Winnipeg River cannot be duplicated anywhere on this continent.

"The City of Winnipeg, in the Province of Manitoba, has, therefore, in the water powers of the Winnipeg River, a potential assurance and guarantee of future industrial, commercial and municipal growth, the importance of which is not generally appreciated. It is exceedingly fortunate that the Department of the Interior, has in its water power and general land administration along the Winnipeg River, protected these potential power possibilities in every possible manner."

The total electric energy consumed in Manitoba to-day approximates only one-sixth of the available power on the Winnipeg River. Hence with the increase in our rural population, which will occur after the war, the Province as a whole should benefit from this abundant supply of cheap energy. No other city on this continent is so fortunate as Winnipeg in this respect; certainly there are none when the relative value of water power and the solid or liquid fuels is compared. With an abundant supply of soft water and cheap power there will be offered to manufacturers an irresistible magnet which will result in Winnipeg, in the near future, largely widening her scope as a manufacturing centre.



Reconstruction a Matter of Co-operation

The Government Should Confer with the Manufacturers with a View to Scientifically Expanding Trade; the Manufacturers Should Confer with Their Employees in Order to Develop Industry for Mutual Advantage and Finally Manufacturers Should Confer Frequently Among Themselves

By H. J. DALY

Director of Repatriation and Employment Committee, Ottawa

THE manufacturing industry is, after all, an important branch of our national operations and the nation justly demands that it should, as a whole, attain the highest degree of efficiency consistent with its opportunities. If it is unable to carry its proper quota of national responsibility it goes without saying that there is something wrong, although it does not necessarily follow that the manufacturers themselves are entirely to blame for the deficiency.

However, in view of the problems that already confront the nation, a statement of affairs is overdue, and we must immediately set to work to ascertain our true position and the weaknesses that prevent us from taking full advantage of our opportunities.

Unfortunately the complete and up-to-date statistics that are necessary for the preparation of such a statement are not available. Therefore, the very first item for consideration is the provision of competent machinery for the collection, compilation and distribution of statistics useful in the development of the manufacturing industry. The Department of Trade and Commerce, in co-operation with the various industrial bodies interested, could decide what statistics are necessary and then make it obligatory upon the part of the individuals or corporations to render periodically the information required to make up such statistics.

The country should be divided into proper industrial districts, not having, as at present, the same boundaries as the parliamentary constituencies. This localization would give a bird's eye view of industry in any particular place.

Consultation and co-operation with the other information collecting departments should be insisted upon and the statistics of the various departments so correlated as to enable the business man to get an intelligible view of the situation as regards any particular branch of industry.

Need of Statistics

However, we must forego our analysis for the want of statistics, especially when it is so easy to prove our unsatisfactory condition without the aid of statistics. Take the matter of exports. One of the best tests of national industrial efficiency is the ability to compete in foreign markets, because it indicates that the nation is ambitious, energetic and resourceful. It shows that the industry is well organized, well developed and well supported by the Government.

Now, our normal exportation of manufactured articles is lamentably small and entirely out of keeping with our national aspirations.

Canada is a young country made up of young industries unfamiliar with the intricacies of world trade, and it is usually only when a business reaches the highest pinnacle of financial resources that it has the temerity to venture into international trade. Such fortunate businesses are too few to build up an adequate national export trade. It is vitally necessary to make it easy for all grades of manufacturers to enter the field, but this can only be done by collective effort under government direction.

It is not our intention to set forth a plan for the building up of export trade. I merely wish to point out that export trade is necessary for the adequate development of the manufacturing industry and that the export business should be made available for the small manufacturer as well as the large. The fact that we are not enjoying our proper share of foreign trade is due in a very great measure to a lack of understanding on the part of past Governments, regardless of party, of the kind of assistance required by the manufacturers in order to build up an export trade. The present Government and all thoughtful business men are surely interested in building up a foreign trade, but until they get together in a spirit of earnest co-operation and determination we cannot hope for much development along these lines. Let us hope that an aggressive and businesslike policy will not be delayed until grave pressure, on account of unemployment, *bona fide* enquirers.

Then we come to the question of imports. Why are millions of dollars' worth of goods imported that should be manufactured in Canada? The reasons are many, but I will enumerate what seems to be the most outstanding.

Build Up Home Industries

In the first place, our manufacturers are handicapped by a lack of information concerning imports, and here again arises the need for constructive statistics. Our imports should be classified in greater detail, and this information, together with helpful comments, should be made available to *bona fide* enquirers.

Then again, it is really surprising that our large importers, especially those coming under the head of manufacturers, do not make a greater effort to have a larger portion of their requirements manufactured in Canada. Surely if they fully realized the importance of building up home industries they would take pains to interest and instruct our manufacturers. If they would submit a list of their import requirements to the Manufacturers Association that body could readily determine the feasibility of having the goods made in Canadian factories. It is just another instance of the lack of co-operation. I will cite just one instance. Automobile parts to the amount of over $25,500,000 were imported during the past five years, and while it is admitted that it would not be practical or profitable to manufacture all these parts in Canada, surely a considerable portion of this money could have been retained in the country.

Canada is a vast country with a population of only eight million, consequently selling and transportation expenses are high, and what is much more important our volume of output is small in comparison with that of foreign manufacturers. This disadvantage is emphasized by the fact that we have not so far got volume by catering in a big way to foreign trade. In considering Canadian made goods competing with imported goods, we must bear these facts in mind.

The question arises, how are we to cope with the serious handicap of restricted volume. And once more the answer is—co-operation.

It is a fact that some branches of the manufacturing industry are failures as a whole, and the failures are mainly due to restricted volume. That is, the manufacturers in these

branches in order to cater to the trade are attempting to make nearly all the lines required by the trade, the result being that the production of some lines is so small that loss is unavoidable. Efficiency is bred by quantity production. If we hope to cope with import competition, or if these failing industries are to be revived and made to flourish, it will be necessary for the manufacturers to agree to distribute the lines so that each plant will make fewer articles in greater quantities.

This would have the effect of reducing the costs, improving the manufacturing efficiency and providing working profits. It the lines could be further reduced and standardized, still greater benefits would accrue to both consumer and producer in the way of more business for the producer and better prices for the consumer.

I recently came across a catalogue containing one hundred and twenty-three articles. About eighty-five per cent. of the business resulted from the sales of less than ten of the articles. Orders for the remaining articles were received in very small quantities. In order to manufacture them at a profit the manufacturer made the goods in quantities and filled his orders from stock, with the result that his inventory of finished stock consisted almost entirely of slow moving goods and tied up so much money that the bank became alarmed. It is surprising how rapidly money can be sunk in this way.

Another manufacturer carrying a finished stock of ninety thousand dollars found that over fifty per cent. of it had been in stock over four years and was accumulated in a similar manner.

In one branch of an industry there may be fifteen concerns manufacturing and carrying in stock at a loss, slow-moving goods. Wouldn't it be better for all concerned, if the manufacture of such goods could be alloted to two or three firms who in turn would hand over some part of their product to the other manufacturers, so that all fifteen factories would be provided with ample volume?

The question of co-operation is so important that every branch of the manufacturing industry should be organized into sections under the general organization of the C.M.A., and the members of such sections should not meet in a perfunctory way but in a whole-hearted effort to develop the whole industry.

Some manufacturers seem to think they have a monoply on bright ideas and if they imparted them to others their business would suffer, forgetting entirely that the other fellow also has some good ideas and that we will progress much faster and easier by a frequent exchange of ideas.

This is true not only of our competitors but also of our employees. One of the biggest manufacturing businesses in the world was built up almost entirely from suggestions received from employees. The greatest mine of efficiency is in the heads of the employees and there it will remain securely locked, unless we take the trouble to insert the key of diplomacy and co-operation, always remunerating for the good suggestions and expressing gratitude for the effort that resulted even in impractical suggestions.

This naturally brings up the question of the relation between management and men. When other economic factors are all right, success or failure is largely a matter of supervision, yet what provision have we for the adequate training of supervisors? Foremen are selected and allowed to supervise in the most unscientific manner, regardless of the fact that it is from the ranks of foremen that most of the managers, superintendents, and chief engineers are drawn, and, what is still more important, the foreman is the connecting link between employer and employee, and smooth production depends largely upon his efficiency.

I mention these points to bring home the necessity for closer co-operation all round.

The Government should confer with the manufacturers with a view to scientifically expanding our trade and developing our industry; the manufacturers should confer with their employees in order that they may develop the industry for their mutual advantage and for eradication of all that tends to inefficiency and discontent, and finally the manufacturers should confer frequently among themselves, discussing in a broad, altruistic manner the many important questions that must necessarily be of mutual interest, such as:

Standardization.
Specialization.
Labor Turnover.
Production Cost.
Shop Practices.
Welfare Work.
Safety Appliances.
Export Trade.
Credits.

They could even go further and establish community training schools for the training of salesmen, foremen, employment managers, purchasing agents, and any other classes as found desirable. Community research laboratories might easily be established, working in co-operation with the Dominion Research Bureau.

We have in the Canadian Manufacturers Association the necesary machinery, but the power of co-operation and self-sacrifice is necessary to produce the desired results.

Winnipeg to Have Dairy Show in February

IN conjunction with the annual convention of the Manitoba Dairy Association on February 17th to 21st next, a dairy show is to be held in the Industrial Bureau, Winnipeg. Seven thousand square feet of space will be available for exhibits and it is expected that it will be fully occupied by displays of equipment for dairy work of every description. These exhibits will embrace not only dairy machinery but everything for the modern dairy farm such as gas engines, silos, ensilage cutters, farm lighting plants, milking machines, etc.

The Association is composed of the principal dairymen throughout the west, many of whom are also members of the Canadian Manufacturers Association. Their last convention was a great success due largely to the fact that it was interprovincial in character. It was not simply a Manitoba convention, but a convention for the three Prairie Provinces. Still greater emphasis is being given the inter-provincial idea in connection with the next Convention and Dairy Show, and anyone desiring to meet all the representative creamery and milk plant operators and ice cream manufacturers of Western Canada, will have an opportunity to do so at Winnipeg in February.

Prominent manufacturers of dairy equipment and farm dairy supplies in Eastern Canada and the United States, have stated their intention to place exhibits, and all will doubtless welcome this, the first opportunity to display their goods to the representatives of dairying in all its branches in Western Canada.

Blue prints of the Dairy Show auditorium are available, and will be furnished with all additional particulars upon application to Mr. L. A. Gibson, Secretary, Manitoba Dairy Association, Government Buildings, Winnipeg.

Industrial Warfare

Just as Standardization Simplified the Allies' Munition Problems, the Application of its Principles to "Peace" Business Would Assure Success in the Struggle for Decreased Costs

The Eighth Instalment of a Series of Practical Suggestions for the Profitable Expansions of Our Many Industries

By ROBERT ARKELL

Of Thorne, Mulholland, Howson and McPherson, Industrial Advisors, Toronto

DURING the Great War the standardization of ships, areoplanes, etc., played a part in the speeding up of production which was so important as to render its value almost incalcuable and, judging from the views expressed by captains of industry the world over, the application of its principles will find a leading place among the improved methods of manufacture which are so necessary if foreign competition is to be met. Before the war many manufacturers rejected suggested short cuts in their methods with the phrase, "It might apply to other lines but it would not work in my business," and the result was that their more progressive competitors passed them almost over night.

The principles of success are the same for all lines of business. The merchandizing problems of the manufacturer are no different, basically, than those of the department store. A time-saving routing of materials through an automobile plant would only have to be modified to be profitably introduced to a clothing factory—and so on through the many profit makers. Or, if you still have any doubt of the truth of the statement that the principles of success are the same for all lines of business, look up the activities of some of our most successful manufacturers and you will find them profitably engaged in many different industries.

A few weeks ago the president of a certain commercial piano factory was faced with rising costs but fixed selling prices—the latter caused by contracts for his output. His labor costs per unit were as low as possible. His total overhead could not be reduced. The materials were specified in the contracts and could not consequently be altered. In short, it looked like a failure either through heavy losses on deliveries or law suits upon refusal. About this time, however, his banker, who knew the facts, suggested an investigation by a consultant on business problems and within three months the business was again making a profit—through standarization entirely. Panels, gables, trusses, etc., of the 40 styles were carefully compared, with the result that he found only three different designs of arms, four different styles of sides, etc. The analysis showed that by interchanging parts between the same sizes and woods not only could quicker deliveries be made (which would increase his turnover and, thereby, his profit) but a larger variety of styles could be obtained than under the old method of simply ordering so many of a certain style of piano. Now two separate orders are issued. One for the parts and the other for the assembling. Production has been increased 50% and this has decreased his overhead charge per unit and consequently increased his profit.

Just Four of Many Striking Sentences in Mr. Arkell's Article

1. **The principles of success are the same for all lines of business.**
2. **Investigation has proven that an overwhelming majority of manufacturers lose money through a lack of standardization.**
3. **Manufacturers have their choice of being successful specialists in one or, at most, a few lines; or, of being versatile and poor.**
4. **Competition stimulates or strangles—depending on whether one is a leader or a follower.**

Investigation has proven that an overwhelming majority of manufacturers lose money through lack of standardization—that is—trying to market too wide a variety of lines. A salesman may come in and state there is a demand for a new size or even a new article. The manufacturer enquires of his other salesmen and the statement is confirmed. Without studying the market to ascertain if the demand will warrant its manufacture; without reflecting the effect on his production costs of the introduction of a new line, he estimates its costs, fixes its selling price and is greatly disappointed when his experiment does not pay as well in practice as it did on paper.

Manufacturers have their choice of being successful specialists in one or, at most, a few lines; or, of being versatile and poor. A cloak and suit manufacturer is tempted to add skirts to his line. Later on he is influenced to make dresses as well—first of serge, perhaps, but later of silks, taffetas and wash materials. The more lines there are for a given quantity of sales the less buying power one possesses—which means higher prices—more leftovers at the end of each season which further cuts into your profits—the more samples you have to make up—which increases your selling expenses. By all means, then, first standardize your business as a whole before you attempt to standardize any one product.

But standardization does not stop with the factory. Some firms have sales policies which vary in the different provinces—vary even between cities in the same province. They might even have a separate price list for each district. For Ontario the price probably includes express charges and the goods are shipped prepaid. To Manitoba the same article would have been forwarded carrying charges collect. "It

would not be possible to do it otherwise" such firms would tell one, regardless of the fact that their competitors are making money by wisely refusing to follow their example. Every rule is subject to variation under different circumstances but to start and end with the variations is bound to react unfavorably. It is only a matter of time. It is true that some of these firms have made and are, perhaps, still making money, but that does not mean that their policies are a success. There are firms who, without *any* regard for custom, sound business principles, etc., have made money for a time—but only for a time.

Competition either stimulates or strangles—depending on whether one is a leader or a follower. Competition will have to be met with the most improved methods of manufacture—margins of profit as small as they are before the war will grow smaller as competition becomes keener. No manufacturer, then, can afford to overlook any chance of reducing his costs. Happy-go-lucky methods of doing business even in those branches of industry which heretofore paid handsome dividends, will have to cease—competition will demand it and competition will have her way.

Time alone will tell how many manufacturers will turn their war profits into peace losses, but a lack of standardization in factory, office and sales division—will take a heavy toll.

Progress of the Reconstruction Movement

By SIR JOHN WILLISON
President, Canadian Reconstruction Association

WITH Canada already entering upon the reconstruction period, the past month has been an active one for the Canadian Reconstruction Association. Much valuable information on trade preparations and opportunities has been secured by the Investigation Department through personal inquiries at Ottawa, Washington, Philadelphia, and New York. This information is to be submitted to members in bulletins, together with additional advices from particular sources. The organization of Western and Eastern sections of the Association at Winnipeg and Montreal has been completed, and active work is in progress. General circulation has been given to particular pamphlets dealing with specific phases of reconstruction. These include, "Industrial Relations," "Reconstruction in Great Britain," "Women and Reconstruction," and "New Problems of the New Era," the last being the president's address at Winnipeg, together with Western editorial comment. Another pamphlet is to be circulated shortly on "Reconstruction in the United States."

Satisfactory progress has been made by the Motion Picture Department, which is planning a series of films illustrating the natural resources of the Dominion and the national value of industrial development. Economic research scholarships for women have been established by the Association at Toronto and McGill Universities and the University of Manitoba. At McGill the scholarship has been awarded to Miss Enid Price, who is to investigate the extent to which women have entered the new employments opened to them by the war. At Toronto Miss Elsinore McPherson will investigate opportunities for university-trained women in industrial employments. The University of Manitoba scholarship has been given to Miss Lily A. McCullough, who will make a particular study of "Employments for Women and the Minimum Wage in Winnipeg."

Opportunity for Export Trade

Throughout Canada there should be confidence in the reconstruction period. The demand for reconstruction materials in Europe offers an unexampled opportunity for export trade. The world's food shortage ensures active demand and high prices for agricultural products. The prosecution of federal, provincial, and municipal works will create a large demand for labor and prevent extensive unemployment. The large over-subscription of the last Victory Loan proves the financial stability of the Dominion and provides necessary money for the period of readjustment. There is no cause for pessimism. War experience has proved the capacity of the country to meet and overcome great emergencies. It has established Canada as never before in the eyes of the world.

In trade affairs, without commercializing the heroism of our soldiers, we enjoy a sentimental advantage in the markets of our Allies. The demands of France, of Belgium, of Italy, of Russia, of Serbia, and of Roumania for materials to rebuild devastated areas and restore normal conditions, will be enormous. It is estimated that the reconstruction bill of France alone will total $10,000,000,000. She is reported to be in the market for 400,000,000 pounds of copper. Captain Dulieux, officer of the French Commission to the United States, estimates her immediate steel requirements at 8,000,000 tons, and M. Andre Tardieu, General Commissioner for Franco-American affairs, her total requirements of plg iron at 2,000,000 tons. M. Tardieu also states that no less than 350,000 homes have been destroyed in France. In Great Britain, $450,000,000 or $600,000,000 will be needed to correct the housing shortage and $300,000,000 to renew the highways.

Larger Than Munitions Market

There are great reconstruction demands in Belgium, Italy, Russia, Roumania, and Serbla. These demands are creating an unparalleled market for lumber, for agricultural and textile machinery, for electrical machinery and equipment, for machinery in the mining, wood-working, furniture, chemical, and papermaking industries, for building supplies, and for railway and road-bed materials. This is Canada's great export opportunity. She is faced with a market many times greater than the munitions market.

As there should be vigorous action amongst manufacturers to secure for Canada its fair share of reconstruction orders, so there should be a comprehensive change in domestic industrial policy. It has been estimated that in the last fiscal year, Canada exported to the United States over 1,000,000 cords of pulpwood with a value of some $8,000,000. Had this pulpwood been turned into finished product, it would have sold for over $35,000,000, given employment to hundreds of Canadian workmen, and supplied income for hundreds of homes. There should be expert investigation of our natural resources and scientific research should be employed to the greatest possible degree to determine their industrial value. Manufactures should be carried to final stages in Canadian factories employing Canadian labor. "Made in Canada" should be a dominant consideration in purchases. There is a clear obligation upon every citizen to buy Canadian products, just as there is a clear responsibility upon manufacturers to produce commodities equal to those of foreign competitors. With scientific utilization of natural resources, patriotic buying, high quality production, and final processes of manufacture in Canada, a sound industrial foundation will be constructed for the period which must follow the decline of export demand for the reconstruction of the old world.

Greater Production Effort of Toronto Plant

What the Dunlop Company Have Accomplished in Gardening Since 1914

AMONG the industrial companies of Canada which have an excellent record to their credit in the matter of greater production, is the Dunlop Tire & Rubber Goods Co., of Toronto, and some mention of their achievements in this direction are in order.

The Dunlop greater production effort dates back to 1914, when the Dunlop Company completed arrangements for renting a large portion of a property at the corner of Caroline Ave. and Queen St. East, adjacent to the Ross Nurseries, and consisting of approximately fourteen acres.

Primarily the purpose was to provide a recreation ground for the Dunlop employees, but later it was thought that the size of the plot would make it possible to devote considerable of the space to gardening operations. At the present time, of the original fourteen acres, there are about eight under cultivation, the remaining six consisting of the athletic field and roped-off portions for the spectators. The Dunlop Amateur Athletic Association, which was formed the year previous, immediately began to work in the spring of 1914 on both projects. The Association included all kinds of outdoor sports, and a full and varied programme has been made up and consistently followed out each year since.

It might be well to note that the greater production idea originated with the Dunlop Company, even before the war was thought of, as the first gardens were laid out in the spring of 1914. From a small start interest has been roused up to such an extent that to-day no less than one hundred gardens are being worked, with the possibility of at least one-half as many more for next spring, as the Dunlop Company have possession of the field for some time to come.

At the heart of the busy season in the spring about one hundred and fifty people, both men and women, were to be seen busily engaged in making the land ready. Interest was kept up right throughout the summer, with the result that there was not even one garden neglected.

For the past two years the Rotary Club has assisted in the work for the use of some of the ground and the privilege of including the produce grown on this field along with their other totals of produce produced on the various vacant lots throughout the city.



Greater Production in Toronto

The above represents one section of the eight acres occupied by the Rotary Club Gardens in the Dunlop Athletic Field, corner of Queen East and Caroline Avenue, Toronto. Gardening operations have been vigorously prosecuted here on a large scale before and since the outbreak of war

It might be of interest to note, also, that during this season a piggery was started on a portion of the field. Eleven pigs in all were raised, but, owing to the difficulty of looking after them, they were finally disposed of in the fall, not before, however, a good profit was made on the deal.

Since the Dunlop Company have taken possession of the property many events of note have taken place thereon. A local association picnic was held there one year, and also other events in aid of the community. Many football matches have been played off on the Dunlop field, as sporting enthusiasts of the city are well aware.

Fire Prevention to be Taken Up by Ottawa

Dominion Superintendent of Insurance, at the Instance of the Minister of Finance, Calls for Delegates to Attend a Conference at the Capital—C.M.A. Insurance Committee Names Its Chairman, Mr. W. H. Shapley

(Published by the Insurance Department)

THE greatly increasing fire waste in Canada is attracting more and more attention from every quarter to the urgent necessity for a thorough and determined fire prevention campaign. The subject has now been taken in hand in an energetic manner by the Dominion Insurance Department. Mr. G. D. Finlayson, the Dominion Superintendent of Insurance, has communicated with the Canadian Manufacturers' Association and other public bodies, drawing their attention to the desirability for immediate action and requesting them to appoint delegates for the purpose of conferring at Ottawa at the meeting which will be held there in the near future. This step has been taken at the instance of Sir Thomas White, who has expressed considerable anxiety over the alarming increase in fire losses and the handicap which they are bound to exercise in the period of reconstruction now commencing.

Mr. Finlayson, in his communication, points out that, while, during the five years ending December 31, 1917, Canada's fire waste (excluding that from forest fires) has averaged seventeen million dollars annually, during the first ten months of the current year the loss is estimated at over $29,000,000, and that, unless the average is reduced during November and December, the total loss for 1918 will amount to the huge sum of $35,000,000. He refers to statistics compiled in the United States which show that nearly thirty per cent. of the losses in that country are due to strictly preventable causes, and fifty per cent. to partly preventable causes, the sum of the two making over seventy-five per cent. of the total loss. Applying these percentages to Canada's 1917 loss, we have over $5,500,000 due to strictly preventable causes, and over $9,500,000 due to partly preventable causes. This gives a total of over $15,000,000 a year which might be saved to the nation, and Mr. Finlayson concludes that it is surely worth while to try.

Insurance Committee Meeting

A meeting of the Insurance Committee of the Canadian Manufacturers Association was held on Wednesday, the 27th of November, to appoint a delegate to the conference at Ottawa and to discuss a number of tentative suggestions set forth by the Dominion Insurance Department as a basis upon which the work of fire prevention might be commenced. Many of the suggestions are interesting and of undoubted value. Probably the most important are those which deal with the desirability of the inspection of buildings by properly trained and authorized representatives of the Government.

Is it desirable for the Government to provide for the inspection of buildings, insured and uninsured, for the purpose of detecting conditions likely to cause fires, such inspection to include not only physical construction, but matters such as cleanliness, methods of disposal of waste and regulations for the conduct of employees? The inspectors could receive much assistance from the fire insurance inspectors in respect of insured property and from fire departments in respect of all properties.

The Insurance Committee was unanimous in the opinion that the value of such a system of inspections could hardly be overestimated. The only difficulty appears to be the question of jurisdiction. At the present time, for instance, the Toronto Fire Department carries out such inspections to some extent, while the Ontario Fire Marshals' Department is empowered to act similarly throughout the Province, although to be of very material value the inspections would have to be made on a much wider scale than has hitherto been the case. The Dominion Government could scarcely promulgate laws which would apply to one part of the country and not to another. Apparently, therefore, the only solution of the problem would be for the Federal Government to take over the responsibility for such a system of inspections throughout the Dominion. The expense involved would be considerable, but there can be little doubt that it would ultimately prove to be an act of great economy.

Should such inspectors be vested with the power, in extreme cases, and after due warning, to recommend the cancellation of all insurance on the property until the objectionable conditions are remedied?

Moral Effect of Inspection

The Committee was entirely of opinion that the inspectors should possess this power. Without some such authority the moral effect of the inspections would be small. Should persuasion be insufficient to remove conditions calculated to be a menace to the community, objection could hardly be raised against a certain measure of coercion being introduced. The coercion would take the form of a threat that, unless the objectionable features were remedied, the culprit would find himself in the position of being a self-insurer. A bulletin to the insurance companies pointing out the condition of the property would result in prompt notice of cancellation of all policies.

Should an insurance company be required to report to the Government every risk cancelled on account of refusal of the owner of the property to remedy objectionable conditions, and should notice of this cancellation and the reason therefor be given to all other insurance companies in order that they may investigate before accepting the risk?

This provides for the co-operation of fire insurance inspectors with the Government inspectors. The latter could not keep continual watch on all risks and dangerous conditions might arise which could not be discovered by them for a considerable period. Most insurance companies carry out inspections for their own information, and, in this way, conditions vitally affecting the fire hazard could be brought to the attention of both the Government and other companies who are or who might become interested. It is conceivable, however, that such a regulation might result in much hardship to individual policy holders. Every fire insurance company has its own ideas of what fire hazards are to be particularly avoided, and probably no two companies think exactly alike on the subject. One company may decide never to insure any risk in which a certain fire hazard exists, whereas many other companies accept that hazard with open eyes, rightly considering that it is provided for in the rate of premium paid. The moral effect, however, of the receipt of a Government notice that policies had been cancelled owing to stated conditions, would undoubtedly result in the cancellation of other policies by companies which otherwise would have been content to carry the hazard. On receipt of notice from a company that a policy had been cancelled it

would be necessary for the Government to make their own investigations before notifying other insurance companies.

Mr. Finlayson made certain suggestions regarding the reduction of insurance claims where the fire originated on the property damaged, which the Insurance Committee considered impracticable. The suggestions do, however, raise the important question of the propriety of penalizing in some way an individual who allows a fire to occur on his premises through carelessness or neglect. It is obvious that persons exist to whom the only effective appeal would be fear of the consequences of their own recklessness. Such persons are a menace to all their neighbors and it should be possible to discover some means of making them responsible without incurring the danger of injustice being done to innocent sufferers.

The discussions of the Insurance Committee brought out the following suggestions which were considered sufficiently important to be brought to the attention of the conference referred to above:

1. A very great number of fires are caused, particularly in manufacturing establishments, by carelessness with matches, cigars and cigarette stubs. It should be feasible for the Dominion Government to pass legislation absolutely prohibiting smoking in such places. It was felt that legislation to that effect would be welcomed by the majority of manufacturers who, under present conditions, find great difficulty in enforcing their own rules to this effect.

2. In view of the great number of barns annually destroyed by fire caused by lightning and in view of the fact that lightning fires are rendered practically impossible by the installation of lightning rods, some steps should be taken which would ensure the proper rodding of all such buildings. While legislation towards this end might be difficult, the insurance companies themselves could solve the problem by increasing the difference in rates on rodded and unrodded barns.

3. It being acknowledged that a very large proportion of Canada's fire losses occur in manufacturing establishments, and that the risk of fire in such plants is greatly minimized by the installation of automatic sprinklers, steps should be taken to encourage the more general adoption of this very effective fire prevention apparatus.

4. The various fire departments would be rendered much more efficient if hose and hydrant couplings were standardized throughout the Dominion. This is an action which should have been taken many years ago, but it is not too late to effect so important an improvement.

Mr. W. H. Shapley was requested by the Insurance Committee and agreed to represent the Canadian Manufacturers Association at the conference shortly to be held in Ottawa under the auspices of the Dominion Insurance Department.

Steps Being Taken to Provide Ocean Shipping

Manufacturers Asked to Furnish Information as to Goods Awaiting Shipment or Likely to be Shipped to Various Overseas Markets

(Published by the Transportation Department)

IN a circular issued to members of the Association on November 27th it was stated that action had already been taken by the Government, through the Hon. C. C. Ballantyne, Minister of Marine and Fisheries, to restore the regular steamship services from Canadian ports to South Africa, Australia, New Zealand and other overseas points. The services then announced by Hon. Mr. Ballantyne were as follows:

FROM THE ATLANTIC COAST.

Directions have been given that one of the steamers in the service of the British Government be returned as early as possible and placed at St. John, N.B., for South African ports.

Arrangments are being made for a vessel to Australia and New Zealand in the near future, announcement of which will be made later.

It is expected that a vessel of approximately 8,000 tons will be placed at Halifax for South America between the 10th and 15th of December. More definite announcement will be made in a few days.

FROM THE PACIFIC COAST.

The Dollar Steamship Lines have agreed to inaugurate regular monthly sailings from Vancouver to Hong Kong, Shanghai, Manila and other Eastern ports and return.

It is expected that the regular sailings of the Union Steamships Line from Vancouver to Australia and New Zealand will be reinstated at an early date, as well as the Canadian Pacific service to and from China and Japan.

Since then the manager of the Transportation Department has been advised by Hon. Mr. Ballantyne that the C.P.R. *Empresses* are to be returned at once to the Pacific, and that the fifteen Canadian-owned vessels in the Canadian register are also to be returned immediately.

In order to show the Government the importance of furnishing adequate shipping facilities, members have been requested to furnish the following information:

1. Description and quantity of goods awaiting transportation to these various markets.
2. Prospects of tonnage to these markets for year 1919.
3. Number of weight tons (2,240 pounds per ton).
4. Number of measurement tons (40 cubic feet per ton).
5. Country to which goods will be destined.

It is gratifying to report that the response to this request for information has so far been very satisfactory, indicating that many manufacturers are planning to enter the export field. The data received will be tabulated, and in due course presented to the Government.

In the meantime the first vessels of Canada's Government-owned merchant marine have been launched—the *Canadian Pioneer*, 8,100 tons dead weight, and the *Canadian Voyageur*, 4,350 tons dead weight. These ships have been built by the Canadian Vickers plant at Montreal, and will be ready to proceed to sea within a month. They are the first two of thirty-nine steel vessels under construction for the Government, and they will be operated by a company, the stock of which will all be owned by the Government.

Great credit is due the Hon. C. C. Ballantyne, Minister of Marine and Fisheries, for the progressive spirit he has shown in handling the problems that have arisen. He has proved himself to be a real leader with constructive ideas, and it will be no fault of his if Canada's export trade does not expand to larger proportions in the coming year.

Montreal.—A contract has been let for the erection of a two-story factory for A. Laliberté, 67 St. Famille Street.

Contract has been awarded for erection of a $100,000 one-storey brick extension to plant for Canadian Car & Foundry Company, Limited, 120 St. James Street.

The Canadian Consolidated Rubber Company, Limited, 201 Inspector Street, are erecting a rubber factory costing $4,000.

Excavating has started for a $7,000, two-story, plastic brick extension to factory for Goldner Fur Dressing & Dyeing Works, Fleurimont Street.

Demurrage and the Influenza Epidemic

Board of Railway Commissioners Has Issued a Second Memorandum Clearing Up Certain Misunderstandings Which Arose Following the Issue of the First Memorandum of October 25th, Giving Relief to Shippers

(Published by the Transportation Department)

ON October 25th, the Board of Railway Commissioners issued a memorandum to the effect that demurrage should not be charged where shippers were unable to handle cars owing to the ravages worked by the epidemic of influenza among their employees.

Although it was the view of shippers generally that the Board's judgment was absolutely clear, that the preliminary payment of demurrage ought not to be insisted upon under the circumstances, demands were made by the carriers for full payment in accordance with the rules, refunds to be made afterwards, when the Canadian Car Service Bureau had become satisfied that a refund should be made.

The Board has just issued a second memorandum written by the Chief Commissioners and concurred in by Commissioners McLean and Boyce, which makes the matter absolutely clear. It is as follows:

[COPY]

Car Demurrage Rules — Influenza Epidemic. File Nos. 1700.234, 1700.234, 1-2-3-4-5-6-8-9-11-14.

The Chief Commissioner:

On October 25th a judgment was issued providing that demurrage should not be charged where shippers were unable to accept cars owing to the ravages worked by the epidemic among their employees. This judgment was followed up by a memorandum dated November 14th, which was communicated to the different parties in interest by a letter from the Secretary of the Board. The letter is as follows:

> "I am directed by the Board to write that considerable misapprehension appears to exist as to the meaning of the direction given by the Board on the 25th October last dealing with charges for demurrage during the influenza epidemic.
>
> "The effect of the Board's memorandum is not to abolish car demurrage tolls during the period of the epidemic. Relief, however, is extended to such consignees and consignors who were unable to load or unload cars concurrently owing to the illness of their employees. The general duty to unload promptly where such unloading can be accomplished still remains, but during the prevalence of the epidemic the railway companies may and must, where demurrage otherwise would be charged, relieve firms of demurrage payments to the extent that such firms have been unable to make prompt loading or unloading as a result of influenza among their employees.
>
> "As a result it is the duty of the companies to consider each case on its merits, and apply the appropriate relief. As a further result, all railway companies which excuse the payment of demurrage on the grounds of influenza existing among the employees of consignees or consignors are justified in such action having regard to all the prohibitions of discrimination."

The Car Service Bureau and those applying for relief under the judgment of October 25th do not seem as yet to have arrived at any proper procedure in carrying out the Board's directions, as a number of specific complaints have been received.

There ought to be no difficulty in giving effect to the Board's directions. The situation is perfectly plain. In the first instance, consignors and consignees who make delay either in loading or unloading cars, are subject to the penalties provided under the existing rules; but consignors and consignees who have been unable to load or unload as the result of the influenza among their employees are to be excused from the operation of the Rules. Prima facie, a defaulting consignee or consignor is liable and the onus of proof is on any consignee or consignor to show such a state of affairs existing as the result of the epidemic and under which, with due diligence, it was impossible for the delay to have been prevented.

Applicants for relief under the Board's Order, so that the question can properly be disposed of not only as between the railways and the merchants, but as between merchants themselves, and so that all may be treated on a like basis and without discrimination, should file with the Car Service Bureau, or with the immediate railway company interested, evidence in writing, either by affidavit or declaration, giving the following particulars:

1. The number of men employed immediately previous to the epidemic.
2. The number of men employed during the continuance of the epidemic and at the time the default in question took place.
3. Any special or auxiliary efforts made to release the cars during such period, such as taking men when possible from other branches of the firm's activities, or securing them from outside sources, such as the services of outside carters when available, or showing that no men were available in other branches of the applicant's business.
4. What action, if any, was taken to stop further shipments to the plant until the epidemic had ceased.
5. If no action was so taken to show whether, in the course of trade and having regard to the dates of shipments, any such action was possible.

Some of the complaints that have been received show that at least in part the applications are based upon the so-called bunching of cars. The rules already provide for this, and apart from any specific direction, merchants are entitled to relief when cars are bunched, or in other words, when cars are being forwarded at the one time in greater numbers than as ordered and unloading facilities permit.

On the receipt of this material the matter ought to be promptly dealt with by the Car Service Bureau or by the railway company interested, as the case may be, and under the circumstances the preliminary payment of the demurrage claim ought not to be insisted upon. It is, of course, open to the Buerau or to the railway company interested to challenge the statements made and to ask in doubtful cases for further proof; but I confidently expect that the Bureau and the railways will adjust, without the necessity of any Board hearings, the great majority of cases which will arise.

The Car Service Bureau submits that when it is found that delays are in fact chargeable to the inability of employees of consignors or consignees owing to the influenza to load or unload, the higher tariff now in force ought to be reduced to the lower tariff of $1 a day. There is no room for the distinction that the Car Service Bureau desires to make. When delays are unavoidable owing to the ravages of the epidemic, it is not a question of the scale of charges; it is a question as to whether or not demurrage should or should not be charged, and the Board has ruled that it ought not to be charged. No charge, therefore, of any character is to be made for unavoidable defaults attributable to the foregoing reasons.

(Sgd.) H. L. D.

Nov. 25th, 1918.

I agree,

(Sgd.) S. J. McL.
A. C. B.

Local Switching Rates

Carriers in Eastern Canada Propose Changes Which Will Increase Switching Charges

Effective November 18th, 1918, the different carriers in Eastern Canada proposed to advance their local switching rates applicable between points within any one terminal or switching limits of any one station, also to cancel what are known as reconsigning switching charges.

To sum up, the changes proposed were as follows:

1. Increase in minimum weights.
2. Increase in local switching rates.
3. Cancellation of reconsigning switching charges.
4. Cancellation of local switching charges on traffic delivered to or received from team tracks within same terminal.
5. Increase in charge for movement of car from one siding to another within same yard or industrial plant.
6. Cancellation of certain services, the charges for which are now being absorbed.

On November 5th the Board of Railway Commissioners was asked to disallow these tariffs. On the 16th of November, Order No. 27861 was issued dismissing the Transportation Department's application for the disallowance of the tariffs, but postponing them pending a hearing and further order of the Board.

The advances range anywhere from 25 per cent. to 150 per cent. The minimum charge for local switching at

practically all points is shown as $10 per car. In the larger terminals such as Toronto, Montreal, etc., the minimum is of course higher. The new minimum weight is generally speaking 50,000 pounds. The cancellation of the reconsigning switching charges means that traffic would have to move under the local switching rates, which means a considerable increase in the charge per car, especially at large terminals. The cancellation of the application of the local switching charges from and to team tracks necessitates the use of the regular local station to station rates, which is an enormous increase over the present local switching rates. The new minimum for intra-plant movement or from and to sidings within the same plant or yard, is fixed at $5 per car. At present this charge is usually around $2.

Express Rates to be Advanced

Application Filed by Express Traffic Association for a General Increase in Rates on Express Shipments

The Transportation Department of the Association has recently received from the Express Traffic Association of Canada, copy of an application filed on behalf of the express companies operating in Canada, for a general increase in rates for the handling of express shipments between all points in Canada. This application states that companies require an average increase of at least 25 per cent. over the present rates per 100 pounds, west of Sudbury, and 37 per cent. over the present rates per 100 pounds east of Sudbury.

It is alleged that, if allowed, the rate scale proposed on page five of the application, will give the average increase mentioned. From a casual examination of the application it would seem that quite a lot of information will have to be furnished by the express companies in order to explain just what the new rates propose to cancel.

Interswitching

The New Regulations and Rates Governing Interswitching Are to Become Effective on January 1st

Information has been given from time to time in connection with the new Interswitching Rules, which were originally ordered by the Board of Railway Commissioners as per General Order No. 230 to become effective July 1st, and were later postponed at various times in order that certain clauses which had been objected to by the Association could be adjusted. This was finally arranged at a meeting in Ottawa on October 24th, 1918, at which time it was agreed that changes be made in General Order No. 230 as follows:

1. In view of the services and tolls herein provided for, any arrangement or device, such as free or assisted cartage, cartage allowance or the like, intended to equalize the facilities of competing carriers at common points, are hereby prohibited for the future, and schedules now authorizing such shall be withdrawn and cancelled within three months from the date of issuance of this order.

Provided that if a carrier deem itself entitled to exemption from this section in a particular case, it may, within six months from the date of issuance of this order, or within six months following the establishment of interchange facilities at any particular point hereafter, apply to the Board for relief.

2. Clause 14 of General Order No. 230 to be amended to apply only to traffic to and from team tracks;

also that local switching tariffs be amended along the following lines:

Railway companies to amend their local switching tariffs to provide that the local switching tariffs to provide that the local switching tolls between private sidings shall not be exceeded on traffic to and from transfer points with connecting lines for distances over the four miles covered by the Interswitching Order.

all charges as outlined to take effect January 1st, 1919.

The amendment to Clause 14 mentioned above, leaves the shippers having private sidings the right to route their traffic, which Section 14 of General Order 230 proposed to take away. In other words, the new order confines this section to team track traffic.

C. F. Classification No. 16

Canadian Freight Association Files Supplement Which is Now Being Checked by Transportation Department

On November 11th the Canadian Freight Association filed with the Board of Railway Commissioners proposed Supplement 12 to Canadian Freight Classification No. 16. This supplement contains quite a number of additions and changes in ratings. Some of the changes contemplate advances and others reductions. The Transportation Department is having a complete check made of this supplement, and all interested members will be advised as soon as possible of any changes affecting their business. Thereafter due consideration will be given any objections received by the proper authorities before the supplement is passed on by the Board.

Icing Reports

Railways to Continue Shipping Icing Reports to Shippers re Ice and Salt Supplied

Some time ago the carriers indicated their desire to discontinue supplying reports from their icing stations to show the amount of ice and salt supplied to refrigerator cars containing shipments of fresh meats and packing house products, etc. The practice has been in vogue for quite a number of years, and is very necessary for interested shippers. The work required in making these reports is very small, as the shippers supply return postcards for the purpose. The railways have indicated that they will take this matter into consideration with interested shippers next spring with a view to adopting standard methods in connection with this question.

The Lumber Embargo

Embargo on Lumber from Canada to United States, in Effect September 16th, Has Been Cancelled

Effective 12.01 a.m., Monday, September 16th, 1918, an embargo was placed on all shipments of forest products except shooks, staves, hoops, headings and manufactured containers, applying from all points in the United States and Canada to destinations within the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, West Virginia, Ohio, Wisconsin, Indiana, Illinois and Michigan, and the District of Columbia, except when consigned to certain Railway and Government Officials.

Accordingly, movement of all forest products except those mentioned to designations within the territory shown was controlled by permits issued by The Car Service Section or freight traffic committees of the Railroad Administration in the United States, after presentation by consignees of evidence to justify transportation service. No permits, however, were allowed on what is known as reconsigned traffic.

The embargo referred to was cancelled on November 19th, so that in future shipments may move as prior to this embargo.

No Increase Yet

Advance in Milling in Transit Charge on Grain has Been Posponed Pending Hearings

The carriers both east and west proposed, effective November 1st, to advance their milling in transit charge generally from one cent to two cents per 100 pounds. However, on representations being made to the Board of Railway Commissioners at Ottawa on October 29th, that body issued Order 27781, postponing the effective date of the tariffs, naming the proposed advance pending further hearings and order of the Board.

A hearing in this connection is to be held shortly in Winnipeg, at which the Association will be represented.

Tariff on Building Materials

Change in Minimum Weights on Stone and Other Building and Paving Materials Order by Railway Board

After a hearing held in Toronto on October 17th on complaint of this Association against increases in carload minimum weights on crushed stone, the Board of Railway Commissioners issued General Order No. 253, dated Ottawa, October 29th, ordering the Railway Companies to amend their tariffs on building material as follows:

1. To provide that the minimum weight for crushed stone and other building and paving materials, now shown as the marked capacity of the car but not less than 60,000 pounds, be the marked capacity of the car but not exceeding the actual weight when cars are fully loaded, subject to the said minimum of 60,000 pounds.
2. To provide that no greater weight shall be charged for the said materials than that to which the shipper may be restricted by the carrier by reason of any track bearing limitations.

such changes to take effect not later than November 18th, 1918.

Rate on Ferro-Silicon

Proposed Advance by Railways to be Subject of Hearing by the Railway Board

The Railways in Eastern Canada, effective November 15th and 19th, proposed to cancel certain special commodity rates applicable to carload shipments of ferro-silicon from Welland and Thorold, Ont., and Shawinigan Falls, Que. On representations being made to the Board of Railway Commissioners by the Association for the postponement of this advance, so that interested members could have an opportunity of presenting their objections, the Board issued November 7th Order No. 27841, postponing the advance pending a hearing to be held by the Board. Interested members have been advised of this action.

Perishable Tariff

Shippers Asked to Assist in the Matter of Better Protective Packing in Cold Weather

A circular dealing with the handling of perishable traffic during cold weather has been issued to the shipping public by C. N. Ham, secretary of the Express Traffic Association of Canada. It runs as follows:

"In view of the susceptibility to damage by frost during certain months of the year—approximately from the 1st of November to the 31st of March—the Express Companies desire to direct attention to the necessity of better protective packing for such articles as green or fresh fruit and vegetables, flowers, liquids, etc.

"The Government is, quite properly, putting forth extraordinary efforts to conserve the food supply. It is also your duty and ours to prevent destruction.

"Express goods are carried on passenger trains which are heated by steam or otherwise. Shippers may be under the impression, therefore, that perishable articles forwarded by express are always quite safe from frost, but it must be remembered that these goods are hauled by wagons in the cities, and are of necessity moved on station platform trucks between trains and depots, where heated protection cannot always be provided.

"The Express Companies are not liable for any loss or damage to shipments caused by weather conditions which are beyond their control.

"In the mutual interests of shippers and Express Companies, and of the public welfare, you are respectfully asked to assist in the matter of better protective packing, and also to refrain from tendering to the Express Companies for shipment perishable articles which are not sufficiently packed to protect the contents from damage by frost.

"The Express Companies prefer that their patrons should take suitable steps in this matter, thus avoiding the necessity of their declining to accept and receipt for shipments not properly protected."

Newfoundland Shipments

New Customs Regulations re Bills of Lading on Shipments to Newfoundland Require Special Information

The Reid Newfoundland Company advises, account instructions issued by the Newfoundland Customs, all bills of lading and waybills for freight forwarded *via* North Sydney, and their line must give correct contents of packages and must also show all marks and numbers.

Agents and others concerned will, therefore, see that shipments for Newfoundland *via* North Sydney and Reid Newfoundland Company are not accepted unless information as above is shown on waybills and bills of lading.

Distribution of Tariffs

New System of Distributing Railway Freight Traffic to Shippers Arranged

Effective October 1st, 1918, as per General Circular No. 11, issued by Mr. G. C. Ransom, agent for the different railways east of Port Arthur, a new system was inaugurated in connection with the distribution of railway freight tariffs. Prior to the date mentioned tariffs were distributed by Mr. Ransom direct. The new system requires that each individual carrier distribute its own tariffs direct to shippers and others interested. Therefore members desiring copies of freight tariffs issued by lines in Canada east of Port Arthur should apply direct to the Chief of Tariff Bureau or other official in charge of the tariffs of each individual carrier.

For the information of members we submit herewith the names of these officials for the four largest roads:

R. J. Hunt, C.T.B., Canadian Pacific Railway, Montreal.
J. B. MacPherson, C.T.B., Grand Trunk Railway, Montreal.
Jas. Orr, G.F.A., Canadian Northern Railway, Montreal.
R. E. Perry, A.G.F.A., Canadian Government Railway, Moncton, N.B.

In making applications for tariffs, if you are unable to quote the numbers you should give a brief description of the territory from and to which the rates are desired, also on what commodity the desired rates apply.

Charges for tariffs remain the same as heretofore and accounts will be rendered monthly direct by Mr. Ransom.

New Tariff Regulations

Customs Decisions

NOVEMBER 12TH, 1918.

Motor-driven street flushers, per illustration, declared to be dutiable under tariff item 428, as being a "motor vehicle."

Pyrex transparent ovenware, declared to be dutiable under tariff item 326—general tariff rate 32½ per cent.

Tea, imported in packages of wood, which along with the tea weigh over five pounds, declared that in such case the weight of the package is not to be included in the weight for duty.

Child's toy books rated at 10 per cent. under item 171 do not include child's paint books which contain blank leaves to be drawn upon, together with pictures already drawn for painting, the latter described books being dutiable under item 180.

Cane, reed or rattan, not further manufactured than split, when imported by schools for manufacturing purposes while teaching pupils, rated under tariff item 752.

Wreaths and sprays of artificial holly, expressly designed for decorating purposes and not suitable for ornamenting hats, dutiable according to material.

War Measures Restrictions

Since the armistice has been signed the Canada War Trade Board has eased up very considerably the Canadian war measures restrictions on exports and imports. A like easing up procedure has been followed by the United States authorities. In the United States, priority restrictions on the use of iron and steel have been lifted. Restrictions governing the use of structural steel are now a dead letter; export licenses for metals from the United States for Canada are now being granted very generally and the conservation list which had been adhered to very strictly by the Washington authorities in respect to numerous lines, has been materially abbreviated. Generally speaking, permits for shipments from the United States into Canada are being considered freely. In Canada the War Trade Board is allowing manufacturers of iron and steel to be exported without much restraint. It is also allowing a large quantity of steel scrap to be exported owing to the lack of satisfactory markets therefor in Canada. This relaxation of war measures restrictions is general all along the line in respect to both imports and exports.

Both the Canada Food Board and the War Trade Board are solicitious of lifting as far as possible for the time being the obstructions which prevent individual industries from participating in export trade through normal channels.

This week we have received cable advice through the War Trade Board, Ottawa, that the United Kingdom has made the following changes in the British regulations restricting imports:

A general license has been issued which allows the importation of apples into Great Britain for a period of three months. Canadian exporters are required to find their own shipping space. For this, they are advised by the Canada War Trade Board to apply to Sir Arthur Harris, Director Overseas Transport, c/o Canadian Pacific Railway Company, Montreal.

A general license has been issued for three months permitting the importation of any quantity of fruit, canned, bottled and preserved, and soap. The foregoing, however, does not include jam.

It is also announced that a general license has been issued to permit imports of any quantity of the following commodities, provided the importer in the United Kingdom first secures a permit ti make the purchases:

Works of art, aerated, mineral, and table waters (unsweetened), manufactures of aluminum, aluminum powder, apparel not waterproofed, baskets and basketware of all kinds, metal baths, live birds, bladders, casing and sausage skins, brooms and brushes, cement, raw cocoa, diatomite or infusorial earth, fatty acids, fire extinguishers, fresh flowers, leather gloves, hats and bonnets, horns and hoofs, incandescent gas mantles, vegetable ivory, lawn mowers, linen yarns, and toilet preparations, photographic apparatus, pictures, prints, engravings, and photographs, plates, gilt ware, salt, sewing machines, manufactures of skins and furs, stereoscopes, stoves and ranges, straw envelopes for bottles, sugar cane, complete spectacles and eyeglasses not containing gold, time-recording instruments of all kinds and movements and parts thereof, vacuum cleaners, wringer and mangles, weighing machines, scales and balances of all descriptions, and wood flour, subject to control of price. The general license also extends to almonds, bananas, and nuts."

Removals from and Modifications of the United States Export Conservation List

Removals

The War Trade Board announce the removal of the following commodities from the Export Conservation List, effective November 27, 1918:

Tin, Babbitt Metal, Etc. (Removals).

Alloys as follows:
  Containing tin.
  Dental.
Antifriction metal, bars and pigs and all shapes, unless an integral part of a complete machine.
Babbitt metal, bars and pigs and all shapes, unless an integral part of a complete machine.
Bearings, as follows:
Antifriction. } Unless an integral part of a complete machine
Babbitt. }
Bichloride of tin.
Bottle caps or covers of tin foil.
Bottle or jar closures, tin.
Cans, as follows:
  Oil, second-hand crushed.
  Oil squirt.
Caps, as follows:
  Tin-foil bottle.
Car seals, tin.
Chaplets, tin.
Chloride of tin.
Closures, tin bottle or jar.
Cloth as follows:
  Tin wire.
Collapsible tubes, tin.
Composition foil containing tin.
Corks, crown tin.
Covers, tin-foil bottle.
Crown corks, tin.
Curtain rollers, tin.
Dental alloys.
Disks, tin roofing.
Foil and composition foil containing tin.
Founts, lamp (tin).
Frames tin picture.
Kitchen utensils, tin.
Lamp founts, tin.
Lanterns, tin.
Metals, as follows:
  Antifriction.
  Babbitt.
  Type.
  White.
Novelties, tin.
Oxide of tin.
Phosphorized tin.
Picture frames, tin.
Printers' type.
Rivets, tinned.
Rollers, tin curtain.
Roofing discs, tin.
Salts, as follows:
  Tin.
Seals, tin car.
Signs, tin.
Silverware containing tin.
Solder.
Specialties, tin
Spouts, tin.
Stoves, tin.
Sundries, tin.
Tableware, tin, not silver plated.
Tacks, tin.

Tags, tin.
Tetrachloride of tin.
Tin, as follows:
Any metallic alloy containing tin.
Bichloride of.
Bottle caps or covers of tin foil.
Bottle or jar closures.
Can (oil), second-hand crushed.
Chloride of.
Collapsible tubes.
Crown corks.
Compound of.
Crystals.
Foil and composition foil containing tin.
Oxide.
Phosphorized.
Salts.
Silverware, containing tin.
Tetrachloride.
Sundry articles, all, either made of tin plate or coated or dipped tin, such as:
Buttons.
Car seals.
Chaplets.
Curtain rollers.
Household devices
Kitchen utensils.
Lamp founts.
Lanterns.
Novelties.
Oil squirt cans.
Picture frames.
Rivets.
Roofing disks.
Signs.
Specialties.
Spouts.
Stoves.
Sundries.
Tableware not silver plated.
Tacks.
Tags.
Tops and bottoms and fastenings to be used in the manufacture of fibre containers.
Toys.
Wire.
Wire cloth.
Toys, tin.
Tubes, as follows:
Collapsible (tin).
Type metal.
Type, printers'.
Utensils, kitchen (tin).
White metal.
Wire cloth, tin.
Wire tin.

Machinery, Tools, Etc. (Removals).

Aeronautical instruments.
Aeronautical machines, their parts and accessories.
Anti-aircraft instruments, apparatus and accessories.
Band-saw blades.
Blades, saw (circular, hack, and band).
Blast furnaces, open-hearth.
Boilers, as follows:
Marine.
Ship.
Boring machines, horizontal and vertical.
Boring mills (vertical all sizes).
Cable, stud-link chain.
Calipers.
Cars, railway (completely assembled and unassembled and parts thereof).
Chain, as follows:
All iron and steel chain, either welded, cast or stamped.
Chronometers.
Chucks, drill.
Chucks, lathe.
Circular-saw blades.
Comber needles.
Compasses, ships'.
Condensers.
Dental instruments.
Drill chucks.
Drilling machines, radial.
Drills, as follows:
Carbon and high-speed twist.
Twist.
Engines, arine and parts. (Individual licenses not required to Canada and Newfoundland for engines of 60 horsepower and under.)
Files, abrasive.
Fireroom parts, marine.
Open-hearth blast furnaces.
Steel furnaces.
Grinders, internal, plain and universal.
Hack-saw blades.
Hydraulic presses.
Instruments, as follows:
Aeronautical.
Anti-aircraft.
Chronometers.
Dental.
Pyrometers, equipment and thermocouples.
Sextants.
Ships' compasses.
Surgical (individual licenses not required to Canada and Newfoundland, when consigned to hospitals and government officials).
Tachometers.
Lathe chucks.
Lathes, all sizes.
Locomotives and parts thereof.
Machine tools, as follows:
Grinders, internal, plain and universal.
Horizontal and vertical boring machines.
Lathes, all sizes.
Milling machines, plain and universal (except hand millers).
Planers.
Radial drilling machines.
Slotters.
Vertical boring mills, all sizes.
Machines, as follows:
Aeronautical, their parts and accessories.
Boring (horizontal and vertical).
Drilling (radial).
Milling, plain and universal (except hand millers).
Marine boilers.
Marine engines and parts.
Marine fireroom parts.
Marine steam turbines for mechanical drive.
Micrometers.
Mills, plate rolling.
Needles, comber.
Open-hearth blast furnaces.
Plate rolling mills.
Presses hydraulic.
Pyrometers, equipment and thermocouples.
Radial drilling machines.
Railway cars completely assembled and unassembled and parts thereof.
Reamers.
Rolling mills, plate.
Saw blades, circular, hack and band.
Sextants.
Ship boilers.
Ships' compasses.
Slotters.
Steel furnaces.
Stud-link chain cable.
Superheaters.
Surgical instruments.
Tachometers.
Thermocouples for pyrometers.
Tools, as follows: Calipers, drill chucks, drills, files, abrasive (see files), lathe chucks, micrometers, reamers, saw blades, circular, hack and band.
Turbines, marine steam, for mechanical drive.
Twist drills.
Vertical boring machines.
Vertical boring mills (all sizes).

Iron and Steel (Removals).

Alloy steel.
Bands, iron and steel.
Bars, iron and steel (including flats 6 inches wide and narrower).
Boat spikes.
Boiler tubes.
Bolts, iron and steel track.
Boring tubes (oil-well casing).
Cable (iron and steel, consisting of six wires or more).
Casing, oil-well (frequently described as "boring tubes").
Cast-iron pipe.
Fabricated structural steel, iron and steel, including angles, channels, beams, tees and zees, and plates one-eighth of an inch thick and heavier, punched or shaped, including tanks made of plates one-eighth of an inch thick and heavier.
Frogs and switches.
High-speed steel.
Hoops and bands, iron and steel, including hot-rolled and cold-rolled strip steel.
Iron and steel, as follows:
Alloy steel.
Bars (including flats six inches wide and narrower).
Boiler tubes.
Bolts, track.
Fabricated structurals, including angles, channels, beams, tees and zees, and plates one-eighth of an inch thick and heavier, punched or shaped, including tanks made of plate one-eighth of an inch thick and heavier.
Frogs and switches.
High-speed steel.
Hoops and bands, including hot-rolled and cold-rolled stripsteel
Mechanical tubes.
Nails, iron cut.
Nails, steel wire.
Oil-well casing (frequently described as "boring tubes").
Pipe, cast-iron.
Pipe, drive.
Pipe, line.
Pipe, wrought iron and steel.
Poles.
Rails, 50 pounds per yard and less, and splice bars.
Sheets less than one-eighth of an inch thick.
Skelp.
Spikes, boat.
Spikes, railroad.
Spikes, steel wire.
Tie plates, steel railroad.
Tool steel.
Wire.
Wire rods.
Wire rope, cable or strand, consisting of six wires or more.
Mechanical tubes, steel.
Nails, iron cut.
Nails, steel wire.
Oil-well casing (frequently described as "boring tubes").

Pipe, as follows:
Cast-iron.
Cast iron and steel drive.
Iron and steel line.
Wrought iron and steel.
Plates, as follows:
Tie plates, steel railroad.
Poles, iron and steel.
Railroad spikes, iron and steel.
Railroad tie plates, steel.
Rails, 50 pounds per yard and less, and spliced bars.
Rope, wire (iron and steel), consisting of six wires or more.
Sheets, iron and steel, less than one-eighth of an inch thick.
Skelp, iron and steel.
Spikes, boat.
Spikes, iron and steel railroad.
Spikes, steel wire.
Strand (iron and steel) consisting of six wires or more.
Tie plates, steel railroad.
Tool steel.
Track bolts.
Tubes, as follows:
Boiler.
Boring (oil-well casing).
Mechanical tubes, steel.
Wire, iron and steel.
Wire rods, steel.
Wire rope, cable or strand (iron and steel), consisting of six wires or more.

Chemicals, Drugs, Etc. (Removals).

Acids, as follows:.
Formic and its salts.
Hydrochloric
Hydrocyanic.
Hydrofluoric.
Muriatic.
Aloes.
Aloin.
Antimony, crimson.
Atropine and its salts.
Balsam copaiba.
Balsam tolu.
Barium peroxide.
Belladonna and its products.
Belladonna salts.
Bismuth salts.
Bisulphate of soda.
Bisulphite of soda.
Bisulphide of carbon.
Blanc fixe (sulphate of barium).
Bluestone (copper sulphate).
Blue vitriol.
Cadmium as follows:
Compounds.
Calcium hypochlorite (bleaching powder).
Cantharides.
Carbon bisulphide.
Carbon disulphide.
Ceresine.
China-wood oil.
Cobalt, chemical compounds thereof.
Copaiba, balsam.
Copper, chemical compounds thereof.
Cosmetics, face creams containing salts of mercury.
Crimson antimony.
Digitalin and its compounds.
Digitalis and products.
Disulphide of carbon.
Emetine and its salts.
Epsom salts.
Ergot.
Ergotine and its compounds.
Ether.
Eucalyptol.
Face cosmetics containing salts of mercury.
Fertilizers, as follows:
Humus.
Land plaster.
Poudrette.
Soot.
Fluoride of soda.
Formates, all.
Formic acid and its salts.
Guaiac resin.
Humus.
Hydrochloric acid.
Hydrocyanic acid.
Hydrofluoric acid.
Hyoscine and its salts.
Hyoscyamine and its salts.
Hyoscyamus.
Hypochlorite, calcium (bleaching powder).
Hyposulphite of sodium.
Lactose.
Land Plaster.
Manganese, chemical compounds thereof.
Menthol.
Milk, sugar of.
Muriatic acid.
Mustard oils.
Nux vomica and products.
Oils as follows:
China-wood.
Mustard.
Santalwood.
Oxide of zinc (zinc white).
Ozokerite.
Peroxide of barium.
Phosphate of soda.
Philocarpine and its salts.
Plaster, land.
Poudrette.
Resin, guaiac.
Sal soda.
Salts, as follows:
Atropine.
Belladonna.
Bismuth.
Emetine.
Epsom.
Formic acid.
Hyoscine.
Hyoscyamine.
Pilocarpine.
Strychnine.
Uranium.
Zinc.
Santalwood oil of.
Scanmony.
Sodium compounds, as follows:
Bisulphate.
Bisulphite.
Fluoride.
Hyposulphite.
Phosphate.
Sulphate.
Sulphide.
Sulphite.
Soot.
Strophanthine and its compounds.
Strophanthus and its products.
Strychnine and its salts.
Sugar of milk.
Sulphide of sodium.
Sulphite of sodium.
Thorium and articles containing thorium.
Thymol and its compounds.
Titanium compounds.
Tolu balsam.
Tungsten, any chemical compound thereof.
Uranium salts.
Valerian.
Vanillin.
Varnish.
Veratrin.
Vitriol, blue.
Zinc oxide (zinc white).
Zinc, salts of.
Zinc, white (zinc oxide).
Zirconium compounds.

Hair (Removals).

Animal hair, as follows:
Manufactures of.
Raw.
Hair, as follows:
Animal, manufactures of.
Animal, raw.
Horse, manufactures of.
Horse hair, as follows:
Manufactures of.
Raw.

Modifications

The War Trade Board announce the modification of the following items on the Export Conservation List, effective November 27, 1918.

Iron and Steel (Modifications).

(1) Plates (all classes, one-eighth of an inch and heavier and wider than six inches in diameter. This includes Nos. 11 U.S. gauge, but not No. 11 B.W. gauge).
Has been modified to read as follows:
Plates (all classes, quarter of an inch thick and heavier and wider than six inches, or over six inches in diameter.)
(2) Rails and splice bars.
Has been modified to read as follows:
Rails, over 50 pounds per yard.
(3) Shapes, including angles, channels, beams, tees and zees.
Has been modified to read as follows:
Shapes, three inches and larger (plain, i.e., not punched or formed), including angles, channels, beams, tees and zees.

Fibres (Modifications).

(1) Fibres, as follows:
Products manufactured from vegetable fibre, except cotton.
Has been modified to read:
Fibres, as follows:
Products manufactured from vegetable fibres, except cotton, hemp and manila.
(2) Hemp and products manufactured therefrom.
Has been modified to read:
Hemp.
(3) Manila fibre and products manufactured therefrom.
Has been modified to read:
Manila fibre.
(4) Vegetable fibres, products manufactured therefrom, except cotton.
Has been modified to read:
Vegetable fibres, products manufactured therefrom, except cotton, hemp and manila.

The effect of the foregoing modifications will be to remove from the Export Conservation List the products manufactured from hemp and manila.

Rubber (Removal and Modification).

The War Trade Board announce the removal of the following commodity from the Export Conservation List effective November 27, 1918:

Rubber articles manufactured therefrom.

The War Trade Board also announce that, effective November 27, 1918, the item rubber has been modified to read: Crude rubber.

Shipments in Transit from Canada or to Canada Through the United States.

The United States War Trade Board announce that they have arranged with the War Trade Board of the Dominion of Canada to co-ordinate their respective policies of export and import control. The following regulations have, therefore, been adopted for the purpose of simplifying the procedure for the licensing of goods in transit from Canada or to Canada, through the United States.

The United States War Trade Board has issued a Special Import License number PBF-25, authorizing the importation into the United States without individual import license of shipments of all commodities originating in or destined to Canada, when the same are conveyed in transit through the territory or *via* any port of the United States. The War Trade Board has also issued a Special Export License Number RAC-56, authorizing the exportation without individual license of such shipments.

SHIPMENTS FROM CANADA THROUGH THE UNITED STATES

Any person desiring to export commodities from Canada to any foreign country through the United States will obtain an export license from the Canadian War Trade Board. In making a shipment he will present with this license to the Canadian Collector of Customs an extra copy of the Canadian export declaration. On this extra copy of the Canadian export declaration the shipper must sign and swear before the Canadian Collector to the following statement:

I, the undersigned, solemnly and truly declare that the exportation of the shipment described herein is authorized by Canadian export license number ..... I further declare that none of the merchandise herein described is shipped or to be delivered in violation of any of the provisions of the United States, "Trading with the Enemy" Act, approved October 6, 1917; that the .....of ....is the actual consignee of the said merchandise, and I further declare that if the shipment is made to a bank, or other broker, factor or agent, that ..... of ..... is the actual consignee on whose account the shipment is made.

(Signature) .....

Sworn and subscribed to before
me on ..... 19.....
Canadian Collector of Customs.

After administering the above oath, the Canadian Collector of Customs will allow the extra copy of the Canadian Export declaration to be forwarded with the shipment to the United States Collector of Customs at the port of entry into the United States who will endorse thereon the date and name of the port of entry.

In the case of shipments by vessels the extra copy of the Canadian export declaration must move forward with the shipment to the United States Collector of Customs at the first port in the United States at which the vessel may stop or at the port of trans-shipment in the United States. The collector will accept the extra copy of the Canadian export declaration as his authority to allow the shipment to be imported under Special Import License Number PBF-25 and exported under Special Export License Number RAC-56.

SHIPMENTS TO CANADA THROUGH THE UNITED STATES.

Any person desiring to import a commodity from any foreign country through the United States into Canada will obtain the regular Canadian license for the importation of such commodity and will forward the number of such import license to the shipper in the country of origin. This import license number will be noted on the bill of lading and on the ship's manifest. Upon arrival at the port of entry into the United States the original, duplicate or triplicate of the bill of lading showing the number of the Canadian import license, must then be presented to the Collector of Customs.

In the case of rail shipments an extra copy of the Customs Carriers' manifest (Form 7512) must be presented to the Collector of Customs, who will note thereon the date, the port of entry and the number of the Canadian import license shown on the bill of lading. The Collector of Customs will then allow the shipment to be entered through the United States Customs in bond under Special Import License Number PBF-25. The extra copy of the Form 7512 must be delivered by the Carrier to the Collector of Customs at the point of exit from the United States, who will allow the shipment to be exported into Canada under Special Export License Number RAC-56 without further authority.

The Relations Between Employers and Employees

By W. G. FRASER
President, Beaver Soap Co., Limited, Winnipeg

It is a pleasure to receive and give space to the following letter from Mr. W. G. Fraser, president, the Beaver Soap Company, Limited, Winnipeg, for it shows that the manufacturers of Canada are everywhere taking a keener interest in the solution of those inportant problems bearing on the relations between employers and employees:—

The Editor,
INDUSTRIAL CANADA,

I was much interested in the articles in your November issue from Miss Strong and Mr. Arkell, bearing directly and with great force on the relations between employers and employees.

This subject is of such outstanding importance in Canadian industrial life just now, that it seems to me a good purpose would be served if you opened your columns to correspondence on this subject. Many manufacturers have spent a great deal of earnest thought on this problem, and an exchange of conclusions could hardly do other than good to all concerned.

I realize that the subject is extremely complex and contains many difficulties which will only be removed probably very many years hence, but I think all thoughtful men will agree that this issue cannot possibly be side-tracked, and that we as manufacturers will only be serving our own best interests, apart from other considerations, if we face the subject frankly and take the initiative in remedying evils, the presence of which everyone is forced to admit.

Profit sharing (as distinct from arbitrary bonuses), is now past the experimental stage, and has been adopted successfully by a number of very strong concerns. To be effective, a system of profit sharing must, I think, have a direct bearing on the value of the work of the employee and the interest he takes in it. This can be done, as it has been done in our plan here, by periodically striking a rate, or "proportion" between expenses and profits, giving employees a direct incentive in keeping expenses down and in seeing that the product of the factory is turned out in satisfactory condition and quantity, with the idea of increasing sales and profits.

Some direct interest must be given a man in his work other than his pay envelope. That, I think, is a fundamental principle, and when properly recognized, will be a long step in the right direction.

Yours truly,

W. G. FRASER,
President, The Beaver Soap Co., Ltd.

Winnipeg, Nov. 29, 1918.

FOREIGN TRADE OF CANADA

(Comparison 1916, 1917 and 1918.)

IMPORTATIONS.

	Month of October.			Seven Months Ending October.		
	1916.	1917.	1918.	1916.	1917.	1918.
Dutiable Goods	$37,946,011	$47,019,685	$44,847,442	$254,530,818	$346,108,703	$315,856,347
Free Goods	33,250,241	31,156,791	30,694,373	207,630,677	281,992,997	244,217,682
Total	$71,196,252	$78,176,476	$75,541,815	$462,161,495	$628,101,700	$560,074,029
Duty collected	$12,074,463	$13,824,546	$13,180,875	$82,177,318	$102,106,166	$94,743,530

EXPORTATIONS.

Month of October.

	——1916——		——1917——		——1918——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$7,299,082	$17,383	$7,668,525	$94,975	$5,484,573	$303,403
The Fisheries	2,515,518	17,787	3,744,367	36,167	3,363,647	80,119
The Forest	5,450,202	338	4,900,739	1,400	4,505,162	.....
Animals and their Produce	13,718,592	530,845	18,679,265	1,358,919	20,529,772	425,452
Agricultural Products	27,306,934	654,333	45,504,815	215,059	31,315,614	41,571
Manufactures	28,637,814	651,726	74,419,973	2,898,213	64,134,325	1,191,241
Miscellaneous	384,033	131,147	176,060	186,020	221,345	122,968
Total Merchandise	$85,312,175	$2,003,559	$155,093,744	$4,790,753	$129,554,438	$2,164,754

EXPORTATIONS.

Seven Months Ending October.

	——1916——		——1917——		——1918——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$48,242,497	$141,181	$43,593,285	$291,839	$44,550,010	$1,729,305
The Fisheries	12,845,386	30,104	14,178,138	118,913	14,866,113	331,511
The Forest	36,703,753	202,612	33,236,635	38,883	45,230,826	37,018
Animals and their Produce	67,101,478	2,253,289	101,681,970	3,554,020	94,277,758	2,618,113
Agricultural Products	233,448,260	3,871,858	306,159,775	6,827,115	164,999,420	665,070
Manufactures	219,461,054	4,875,953	420,380,372	13,227,504	353,089,293	7,613,400
Miscellaneous	4,231,261	909,711	2,727,291	1,368,443	3,126,532	1,285,489
Total Merchandise	$622,033,689	$12,284,708	$921,957,466	$25,426,717	$720,139,952	$14,279,906

Ships for Belgium

Vancouver and Coquitlam Yards Get Further Orders for Wooden Ships

Contracts for the construction of seven wooden steamers of 3,200 tons each have been received for local shipyards, states the *Vancouver Province*. This is the news brought by C. V. Cummings, of the Northern Construction Company, and H. P. Simpson, of the Pacific Construction Company, both of whom returned recently from New York. The ships are all for Belgian interests, and the Northern Construction Company, formerly the Western Canada Shipyards, has four contracts, while the Coquitlam yards of the Pacific Construction Company will build three.

Mr. Simpson stated that his company had contracts to keep them busy for the next year and that there was enough work in sight to keep the yards going until the end of 1920. Mr. Cummings states that his company has contracts sufficient to keep them going for a year, and he believes there is plenty of work in sight for the future.

The offices of the Northern Construction Company are being moved almost immediately from the present location in the Vancouver Block to the shipyards. The company is now working on five 1,500-ton boats for French interests and the work of construction of the 3,200-ton vessels will commence at once.

The Pacific Construction Company is commencing at once the erection of machine shops on Industrial Island, where their ships in future will be fitted out. Hulls will be constructed at the Coquitlam yards and brought to Vancouver for fitting out and to be turned over to the owners. Mr. Simpson stated this morning that rapid progress was being made on the hulls already under construction at Coquitlam. These include two 1,500-ton vessels for French interests and two 2,800-ton ships for the Greek firm of Nichalos Galanos, a firm at New York. The first of the Galanos ships is about ready for launching and the captain and part of the crew are already here waiting to take her over. These ships will be used in trade across the Atlantic, out of New York.

No Objection to Regulations

New Container Specification and Packing Regulations for Shipments of Moving Picture Films

The Express Traffic Association of Canada advised the Transportation Department of the Association some time ago that it was the intention to adopt new regulations governing the specifications for containers and packing of moving picture films when shipped by express, these rules being the same as those prescribed by the Interstate Commerce Commission, which took effect November 1st, 1918, in the United States.

The question was submitted to interested members manufacturing films, and their reply indicated that no objections would be made to the regulations; in fact same were considered quite satisfactory.

INDUSTRIAL CANADA

Issued monthly as the official publication of the Canadian Manufacturers Association (incorporated), and devoted to the advancement of the industrial and commercial prosperity of Canada.

SUBSCRIPTION

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Trade Enquiries

These enquiries come into our hands from various sources. The Weekly Bulletin of the Department of Trade and Commerce, from which the enquiries indicated in the sub-heading allotted to them are taken, should be read regularly by those interested in foreign trade. It will be sent free on application to the Department at Ottawa. The names connected with all those enquiries can be furnished direct from the Commercial Intelligence Department, Canadian Manufacturers Association, Toronto.

DOMESTIC TRADE ENQUIRIES

249. **Chicken Grit.**—A correspondent in Ontario would like to hear from manufacturers of chicken grit.

250. **Stay Paper.**—A firm in Quebec desires to locate makers of the above paper.

251. **Translator and Correspondent.**—A gentleman in Montreal would like to secure a position where translating and corresponding in French are required.

252. **Wire Springs.**—A large company in Welland would like to get in touch with Canadian firms who are making springs of wire, these springs varying from 2½ in. to 1 1-32 in. in length.

EXPORT TRADE ENQUIRIES

253. **Export Trade.**—A firm in Montreal, with branch houses in South America, Central America, West Indies, Europe, and Asia, will devote its time to developing export trade for Canadian manufacturers. We shall be glad to supply the name and address to interested manufacturers.

254. **Agencies.**—A South African company wishes to represent Canadian manufacturers of telephones, electric cable wires, fuse wires, electric bulbs, house lamps, stoves, kettles, grills, irons and mining and sugar machinery.

255. **Agencies.**—We are in communication with a firm of general commission merchants in New Zealand who are anxious to get in touch with firms interested in exporting plywood, logs, shingles, etc.

256. **Paper.**—A gentleman in London, who has had considerable selling experience in paper lines, desires to hear from Canadian manufacturers who require the services of an agent in England.

257. **Varnishes, Powdered Bronze and Hardwood Fittings for Furniture.**—A company in Mexico is interested in obtaining from Canada varnishes, powdered bronze and hardwood fittings for furniture.

258. **Nail Screws and Bevelled Edge Mirrors.**—The above company is also interested in communicating with manufacturers of nail screws and bevelled edge mirrors.

EXPORT TRADE ENQUIRIES TAKEN FROM THE WEEKLY BULLETIN OF THE DEPARTMENT OF TRADE AND COMMERCE

259. **Tools.**—A Liverpool firm asks to be placed in touch with exporters of tools.

260. **Paper, Fancy Leather Goods.**—A Liverpool manufacturers' agent would like to secure the representation of Canadian exporters of the above with a view to post-war business.

261. **Leather Boots and Shoes, Etc.**—A Yorkshire manufacturing company would like to exchange correspondence with Canadian Manufacturers of leather boots and shoes and other footwear, of which they are purchasers of large quantities.

262. **Rubber Boots and Shoes.**—A manufacturers' agent in Barbados invites correspondence from Canadian manufacturers of rubber boots and shoes.

263. **Axe Handles.**—A large Newfoundland hardware company wishes to secure a carload of axe handles.

264. **Lumber.**—A large importing house in Yokohama desires to communicate with good Canadian lumber companies in order to handle various kinds of lumber in this market.

265. **Wire Fencing, Gates, Etc.**—A London firm of engineers is open to undertake the agency of a first-class Canadian manufacturer of wire fencing, gates, etc., for the sale of which they claim an expert knowledge. A partner is at present in the United States, so could advantageously conduct negotiations.

266. **Travelling Agency.**—A traveller with experience in the British West Indies is about to take a trip through those colonies as representative of several Canadian manufacturers. He would like to secure representation for the following additional lines of Canadian goods: Medium-priced men's shoes, babies' shoes, knitted underwear, summer sweaters for ladies, bathing suits, women's hats, wallpaper, rubber goods, artificial flowers.

267. **Cream Separators.**—A Scottish firm asks to be placed in communication with exporters of the above for post-war business.

268. **Pit Props.**—The representative of several Belgian and French manufacturers and mine owners wishes to make arrangements to get supplies of pit props and timber for construction purposes at the conclusion of the war.

269. **Tools, Machine Tools and Steel.**—A Turin house of steel and tool representatives wishes to hear from Canadian exporters of tools, machine tools and steel, for after-the-war trade.

270. **Technical Articles, Machine Tools, Electrical Material.**—A firm in Milan who, before the war worked for German houses, wishes to be put in touch with Canadian houses who can supply machine tools for the working of wood and metals, electrical materials and technical articles.

Among the Industries

Under this heading are published items of news of current interest concerning the activities of Canadian manufactures. Information about changes of interest, enlargement of plants, and plans for future developments are always welcome, and are published free of charge, provided they should not be properly classified as advertisements

***Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin.**

BRITISH COLUMBIA

Beaver Cove.—it is proposed to erect a pulp mill at Beaver Cove capable of an output of 200 tons of pulp a day. Mr. Cyrus McCormack, of the International Harvester Company, is interested in the venture, and Mr. W. H. White, of Boyne City, Mich., is conducting arrangements in connection with the development of the industry. The corporation in which Mr. White is interested controls 80,000 acres, upon which it is estimated there are five billion feet of standing timber, two billion feet of which can be used for the manufacture of pulp.

Burrard Inlet.—The American Nitrogen Products Company plans to build plant at Lake Buntzen at a cost of about $300,000. Preliminary construction work is proceeding, and it is probable the plant will be ready for operation by the end of the year.

Port Moody.—The Port Moody Steel Works, now known as the Columbia Steel Works, Limited, is turning out considerable quantities of pig iron from their electric furnace, the majority being shipped to Japan. It is expected to commence operation of rolling mills shortly, turning out steel rod and bar.

Steveston.—Leslie Lumber Company will rebuild lumber sheds costing $8,500, which were recently destroyed by fire.

Toco.—The Imperial Oil Company, Limited, Camble and Smithe Streets, Vancouver, plan to erect extensions to oil refineries here. Superintendent, J. E. Sirdwan.

Vancouver.—Plans are in progress for constructing an addition to shipbuilding plant, costing about $44,000, for Western Canada Shipyards, Limited, Carrall Street.

An electric smelting works of considerable importance to the Province of British Columbia is now under construction in the heart of Vancouver City by The Tudhope Electric Metals Company, Limited, who are installing the most improved type of plant using high voltage electricity. The works are designed for a considerable output, and marks a new era toward establishing a steel industry in British Columbia, on a solid and permanent basis. Several of Mr. Tudhope's technical staff have already arrived from Eastern Canada, and the plant is expected to be in full operation almost immediately. The works have been built in a remarkably short period, and will give continuous employment to a large number of hands henceforth.

A contract for two vessels of 5,100 tons capacity and one vessel of 4,300 tons capacity has been let to the Wallace Shipyards by Hon. C. C. Ballantyne, Minister of Marine and Fisheries.

P. J. Donohoe, of the Standard Shipbuilding Company, has announced that his company has just closed contracts to construct 21 wooden vessels of the Donohoe type. Two of these boats are of 3,500 tons d.w., delivery to be made in February, 1919; five of 5,000 tons d.w., for the Portugese Government, delivery to be made March, April, May, June and July, 1919. Twelve steamships of 3,500 tons each for the French Government, all to be delivered before December, 1919. Two 3,500 tons for Italian interests, delivery September 15, 1919. The Standard Shipbuilding Company, acording to Mr. Donohoe, has purchased nine and three-quarter acres of land from the Abernethy-Lougheed Company, at Port Haney, and will put the plant in at that point, building their ships in pairs and launching them sideways. The engines and boilers are to be built by the H. Schaake Company, and will be installed before the boats are launched. The contracts represent $16,250,000.

The British Columbia Sugar Refinery has taken out a city building permit for the construction of their dry kiln at the foot of Cambie Street, at a cost of $4,000.

NEW BRUNSWICK

St. John.—The construction work on the addition to the McAvity machine shop, on Marsh Road, St. John, N.B., has recently been completed and machinery is now being installed. The company has also commenced the erection of a new foundry building on the southern end of their property, near Westmoreland Road, some weeks ago.

NOVA SCOTIA

Annapolis Royal.—The Annapolis Shipbuilding Company, which launched a tern schooner of 1,100 tons recently, plans another launching a few weeks hence. The company is also building a repair dock, big enough to handle vessels up to 5,000 tons.

Halifax.—Work is proceeding rapidly on the new yards of the Halifax Shipyards Limited. It will be remembered that the company holds contracts from the Canadian Government for three 10,000 ton steel freighters. It is probable that this yard will operate on an immense scale as soon as it gets going.

An increase in the capital of Halifax Shipyards, Limited, has been authorized, from six million to ten million dollars.

New Glasgow.—The two steel ships to be built by the Nova Scotia Steel and Coal Company, for the Canadian Government are to be around 2,800 tons each and plans are made to pass on to the construction of larger vessels, up to 5,000 tons, as soon as the present contract is completed. This will likely necessitate considerable extensions to the plant in addition to increased equipment of various kinds. The sister ship to the *War Bee*, recently launched, is about ready to put into the water.

The McKenzie Shipping Company has recently launched the four-masted schooner *Cambrai*, which is so constructed that auxiliary gasoline power can be installed at any time. The *Cambrai* is the maiden vessel of this company, which, in view of its present success, is likely to be kept busy. The *Cambrai* has been sold to American interests.

North Sydney.—It is curious to learn that a Cape Breton yard, close to the plate rolling mill, is building a concrete steamer, which will probably be launched very shortly. The company also plans to build a concrete dry dock to accommodate craft up to 5,000 tons. Work is to be commenced shortly on a three-masted wooden schooner.

Sydney.—The construction of the steel plate rolling mill is proceeding rapidly, the machinery being now in course of delivery. Completion is looked for in July next when the

steel shipbuilding industry of Canada (and Newfoundland) will doubtless extend considerably.

The first battery of the 60 new coke ovens of the Dominion Steel Corporation at Sydney, N.S., has just been placed in operation, and the second will be ready by the end of the year. When in full operation the output of these ovens will exceed 1,300 tons. The work on the big blast furnace, which has been reconstructed and enlarged, has just recently been completed, the capacity being increased to 400 to 500 tons per day. Satisfactory progress is being made on the corporation's new plate mill, and it is expected to be ready about this time next year, according to schedule.

ONTARIO

Alliston—Hutchinson and Foster are erecting a cement block creamery costing $7,000.

Almonte.—General contract has been let by Wm. Thoburn for two-story brick woollen mill costing $10,000.

Belleville.—Hutchinson Brothers, Alexandria Bay, boat-builders, have received a United States Government contract for four 1,200-ton coal barges, to be 115 feet over all and 31 feet beam. Work will be commenced as soon as material can be assembled. It is expected 100 men will be given employment on the contract during the winter.

Bowmanville.—Ratepayers have voted in favor of a $50,000 loan by-law for the Canadian Can Co. which will proceed to erect a factory for the manufacture of metal and paper containers.

Brockville.—The Canada Carriage Works, one of Brockville's chief manufacturing establishments, has been destroyed by fire. The loss is estimated at $500,000.

Carleton Place.—Rapid progress is being made in the erection of an addition to the knitting mills of the Hawthorn Mills Company, Limited.

Chatham.—A general contract for reinforced concrete pickling tanks costing $10,000 for the Chatham Packing Company has been awarded.

Dundalk.—Mr. John Heimbecher, formerly with the Ontario Yarn Company, Hamilton, Ont., has opened up the Dundalk Woollen Mills, at Dundalk, Ont., where he is doing some custom spinning, and is now installing machinery for the production of heavy wool socks.

Dundas.—John Bertram & Sons, Limited, are putting up a heat treating building, about 60 by 120 feet. The Hamilton Bridge Works Company, Limited, have the contract for the structural steel work on the building.

Elora.—The plant of the Bissell Company has been destroyed by fire. The loss is estimated at $75,000, covered by insurance. The company has announced its intention of rebuilding the plant.

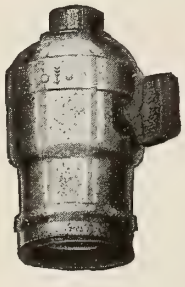
Fort William.—The Canadian Car and Foundry Company, Limited, 1213 Laughton Avenue, contemplate the erection of office buildings. The company have three of the mine sweepers for the French Government completed, and on the eve of departure. It is only a matter of a few days until the remaining five will be ready for their final trials.

Plymouth Cordage Company, Plymouth, Mass., contemplate the erection of a five-story, reinforced concrete warehouse costing $200,000.

Galt.—Good progress is being made in the erection of two machine shops which are being added to the plant of the Galt Machine Screw Company, Limited, Galt, Ont. One extension is 64 x 120 feet, and the other 70 x 76 feet. Both are one-story structures and of brick construction.

Goderich.—The National Shipbuilding Company will erect a one-story concrete and brick boiler shop at a cost of $75,000.

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Sockets for Electrical Use

BECAUSE:—

The workmanship is good—they are made to last.
The materials are good—quality and dimensions conform to best standards.
They are "Made-in-Canada"—here in our own factory, under careful supervision.
They are approved by electrical authorities.
The prices are right—ask for them.



Benjamin Electric Mfg. Co.
of Canada, Limited

Head Office and Works: 11-17 Charlotte Street, TORONTO

Guelph.—The Page-Hersey Iron and Tube Company, Ltd., York Road, will erect addition to munition plant at a cost of $50,000. Work is to commence shortly.

Guelph.—The new linen mill being erected by Dominion Linens, Limited, is nearing completion. There are to be 8,000 spindles installed for spinning flax, and part of these have already arrived and are being set up. By the end of the year the mill will probably be operating at capacity. The opening of this mill will mark a new era in Canadian linen making, as the yarns have heretofore been imported from abroad. The mill will represent an investment of $300,000.

Haileybury.—United Iron Works & Machine Co., Limited, will erect a $75,000 foundry as soon as they have decided on a site.

Hamilton.—The Canadian Cotton Company, Limited, are adding a large addition to their plant.

The Zimmerman Manufacturing Company are adding a three-story brick addition, costing $50,000, to their already modern factory, to take care of their growing business.

Work has been started for addition to factory for Hamilton Cotton Company, Mary Street.

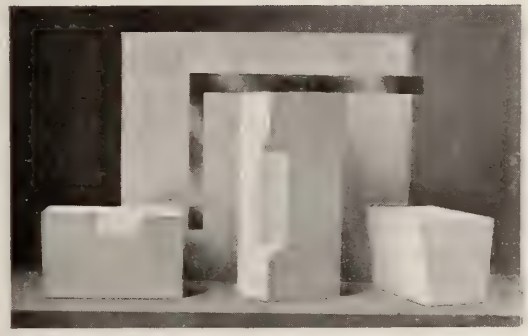
The corner stone of a new office building for the Steel Company of Canada, in Hamilton, Ont., was recently laid by Mr. C. S. Wilcox, chairman of the board of directors. The building will be 47 x 77 feet, three-stories and basement high, with floors of concrete construction. The walls will be faced with tapestry brick from the first floor up, stone being used for the basement walls.

The Oliver Chilled Plow Works of Canada, Limited, have about completed a new oil tank for the storage of fuel oil. The tank has a capacity of about 132,000 gallons. Nearly all the heating furnaces in the forge, etc., are oil heated, and although the company have sufficient storage capacity for normal times, the new tank has been erected to take care of shipping troubles, etc., through the winter.

The Hamilton Bridge Works Company, Limited, are installing an additional 20,000 gallon oil tank to take care of possible troubles and traffic tie-ups through the winter. They have at the present time two large furnaces and a number of small ones heated by oil, while a third large furnace similar to the others is under construction.

The Steel Company of Canada have decided to install a benzol building in connection with their new coke ovens. The building will be at a distance from the other by-product buildings, and will be entirely enclosed by a 12 feet brick wall. Work is being pushed on both the foundations and structural steel work.

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For handling gritty
and abrasive materials.

Submit your problems for the handling of materials in bulk or packages to us for solution. We can devise simple systems for elevating and conveying that will save labor and time in your plant.

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Mark of Quality

It appears on every Link-Belt manufactured by us, and is your guarantee of reliability in material, workmanship, inspection and service.

CANADIAN LINK-BELT CO., LTD.

265 WEST WELLINGTON ST.
TORONTO

Ingersoll.—The John Morrow Screw and Nut Company, Limited, have purchased the plant of the Noxon Company, for $10,000. It is reported that the Morrow Company will spend $10,000 on repairs and offer the plant to the town for the accommodation of a new industry.

Kingston.—A steel ship of 3,750 tons for the Dominion Government is being built by the Collingwood Shipbuilding Company.

Kingsville.—L. H. Carlay will commence at once to erect a boat works, situated on the harbor frontage north of the Lake Erie Fish Company's warehouse.

London.—Excavation has been started for the new knitting factory of Penman's, Limited, of London, Ont., to cost in the neighborhood of $200,000.

A proposition to spend $50,000 in buying up land suitable for factory sites in various sections of the city is before No. 1 committee. It is understood that the new Board of Trade is behind the idea, and that this action is only a forerunner of an energetic campaign which the board will pursue to bring new factories to London. Should the committee pass favorably on the plan a by-law will be submitted at the coming January elections.

Paris.—The G. W. McFarlane Engineering Company have let contract for two billet furnaces, making 13 in all, that this company has installed.

Parry Sound.—Work at the smelter is being rushed ahead by fifty men. The engine room and boilers are to be put in commission shortly and the area between the concrete dock and the shore is being filled in rapidly by a gang with teams and scrapers, hauling material from the ground adjacent to the works. A crib is about to be submerged at the north end of the dock and several shiploads of the ore necessary, will be unloaded there when the ground has been laid out properly and tracks run to the dock to take care of the transfer of ore to the hoppers.

Peterborough.—Matthews & Blackwell Company, 148 George Street, contemplate the erection of a $5,000 addition to shipping building.

Port Arthur.—There was launched on November 8 at the plant of the Port Arthur Shipbuilding Company, Limited, the ocean-going tug *Victoria*. It is an all-steel vessel, built to Lloyd's classification and designed to develop 800 h.p. Its general dimensions are as follows: Length B.P., 119 feet; molded breadth, 26 feet; molded depth, 26 feet 6 inches. This tug is to be delivered before the close of navigation this year.

St. Jacobs.—The Canadian Felting Company is erecting a $5,000 brick addition to factory and has awarded a general contract.

Sandwich.—The erection of a foundry is contemplated by the International Castings Company, Limited.

Toronto.—A permit has been issued by the department of the city architect to Alloy Steel Works for rebuilding part of factory on Logan Avenue, at a cost of $8,000.

Jos. Simpson & Sons, Limited, 7 Berkeley Street, are erecting a factory costing $30,000.

The general contract for reinforced concrete addition to factory, costing $10,000, for the Palmolive Company of Canada, Ltd., 64 Natalie Street, has been let.

The Campbell Milling Company are preparing to enlarge their premises at Cawthra Avenue and Junction Road, and have taken out a permit at the City Hall for the erection of a large reinforced concrete grain elevator and storage tanks. The estimated cost of the structure is placed at $130,000.

Republic Motor Truck Co., 115 Dupont St., plan to erect auto plant shortly.

Matthews, Blackwell Co., contemplate establishment of a fertilizer plant.

(Continued on page 81.)

AN IDEAL combination for any office where the busy man wants everything at his finger tips. Size of each unit—height 13", width 16", depth 19".



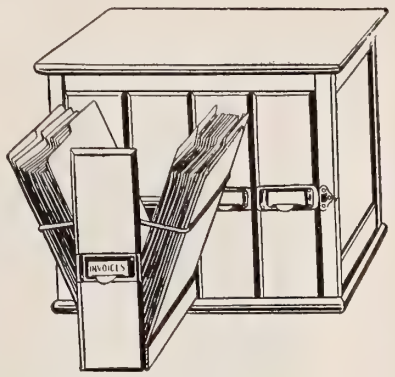
Top unit. Storage cupboard for catalogues or office stationery.

Second unit. Our new patent filing methods which makes papers easier to file and easier to find.

Third unit. For engravings or office stationery or blank forms.

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Made from specially selected Quartered Oak. As above units are simply set together and held in place by dowels, it is very simple and easy to stack them together. Of course, they can be bought as single units or in stacks of any combination or a stack of all one unit.



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The one open drawer contains 30 folders in which are 1000 sheets of heavy copy paper.

As soon as the drawer is drawn out, it automatically spreads open making the contents more accessible.

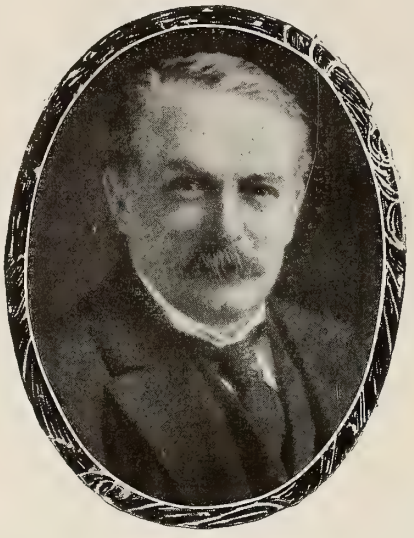
It saves time in filing and finding papers.

The Departmental Manager or Superintendent who has certain papers which he has to refer to frequently will find this case a real friend, as it can be placed on his desk so that he can have everything at his finger tips. If desired, it can be placed in the vault at night.

It is also suited to the man who has private and personal correspondence and documents at his home which he would like filed in a systematic manner.

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Orillia - Ontario



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---Lloyd George

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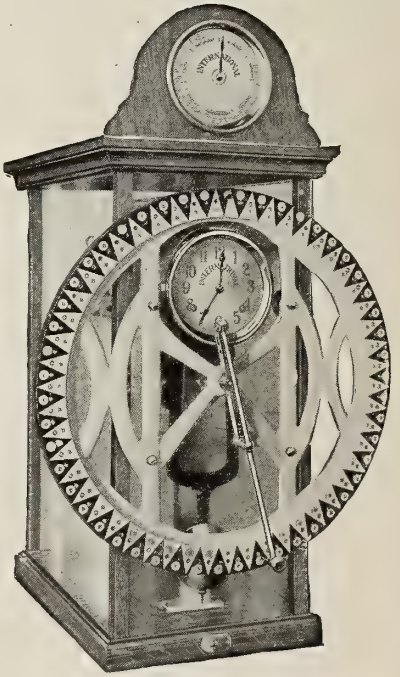
International Business Machines Company,
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(TIME RECORDER DIVISION)

FRANK E. MUTTON, Vice-President and Gen. Manager.

Royce and Campbell Avenues, Toronto. Also at Montreal, Winnipeg, Vancouver.

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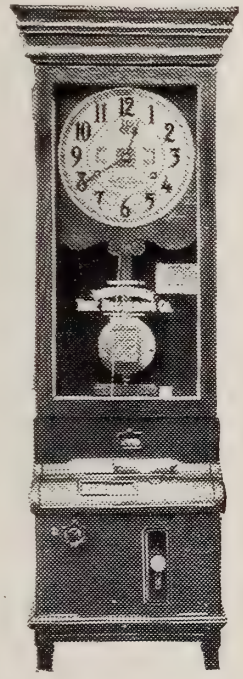
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Not only are times good but we know they're going to be good. Our steadily increasing sales tell us that.

Here we've just recently moved into our new big factory and spent over $100,000 in additions—and we're already planning further enlargements for the Bigger Business that we know is coming.

Just get that again—Time Recorders are only sold to check working time with—and we're selling lots of Time Recorders. Our only problem is to get them out fast enough.



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Remember, working time is the biggest raw material purchase you make. You should check it accurately, fairly, indisputably—with a machine.

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ACCOUNT BOOKS, LOOSE LEAF LEDGERS

Binders and Specialties

LEATHER GOODS—DIARIES—STATIONERY

Printers' and Bookbinders' Supplies

Toronto.—Continued from page 76.

Contract has been let for mill and brick addition to factory, costing $25,000, for Wilson, Lytle, Badgerow Company, Ltd., 112 Duke Street.

Plans are in progress for the erection of a $20,000 two-storey mill and brick addition to factory for Liquid Air Company, 16 Boler Avenue.

Messrs. Henry Davis & Co., 253 Spadina Avenue, are installing some flat machines for the production of various lines of sweaters. Mr. Tony Midday, who has been with the T. Eaton Company for some time, will be in charge of the knitting.

Tweed.—Tweed district is to have a new industry in the form of a fuel manufacturing plant. Messrs. Capelle Trudeau have invested in a complete equipment for the manufacturing of peat fuel, and will begin the erection of the building next week. The peat bed from which the fuel will be obtained is located about six miles east of Tweed. The concern has already received orders for the entire output to be shipped to Montreal.

Wallaceburg.—Canadian Flax Mills Co. will rebuild their flax mill recently damaged by fire.

Welland.—The Empire Cottons Mills Company, Limited, Queen Street East, are erecting office building costing $12,000.

Wellesley.—Messrs. Reiner Bros. are installing some Brinton machinery of the most modern type, for the manufacturing of toques and other lines.

Weston.—The plant of the Toronto Structural Steel Co., which has been established at the north side of this town for about six years, and has been employed in the manufacture of shells for the past two years, together with the land, comprising about 100 acres, has been sold to the Massey-Harris Co. The latter company is already beginning to acquire men housed in the vicinity, so that arrangements for the transfer of gas engine tractor and cream separator machines from the Toronto plant will be completed before the middle of December. The new agricultural machinery plant will provide work for about 1,000 men, mostly expert mechanices. Casting and moulding of heavy parts of the machinery will continue to be done in the Toronto factory, and transfer of these to the Weston plant will be made largely by motor trucks.

Windsor.—The Menard Motor Trucks Company, Limited, 100 London Street West, will erect a factory costing $60,000. Architect, J. C. Pennington, La Belle Building.

General Motors Corporation, 84 Congress Street East, Detroit, Mich., have purchased site and will erect a motor truck factory costing $50,000.

The erection of a reinforced concrete steel and brick distributing plant costing $150,000 for the British-American Oil Company, Royal Bank Building, Toronto, is contemplated, and plans are being prepared at the present time.

Woodstock.—The Canadian Hosieries, Ltd., are erecting a factory costing $18,000.

SASKATCHEWAN.

Saskatoon.—Mr. Henri A. Berger has opened up the Textile Weaving Works at 406 Twentieth Street West, manufacturing various lines of rugs, carpets, hammocks, etc.

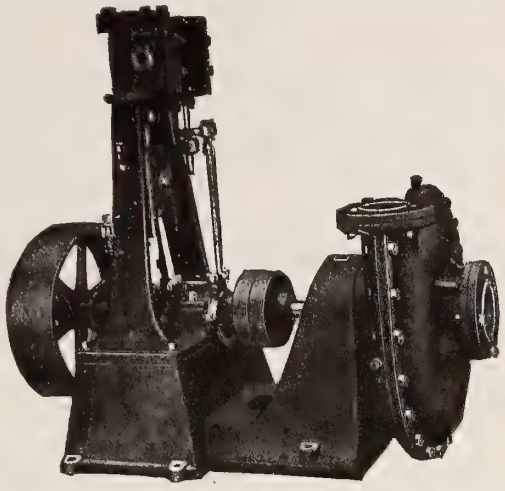
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OFFICE AND FINANCE

Outlines of a Standard Cost System

By JOHN C. KIRKWOOD

THE costs of doing business can be comprehended under eleven heads, which heads apply to business in all its forms—manufacturing, retailing, and farming. These eleven standard headings are:

1. Rent.
2. Fixed expense.
3. Labor.
4. Delivery.
5. Advertising.
6. Miscellaneous items.
7. Losses.
8. Depreciation.
9. Interest paid on borrowed money.
10. Wages due capital.
11. Super-wages due capital.

If and when the costs of doing business are entered under these eleven headings, the manufacturer knows exactly what it costs him each year to operate his business; which means that he knows just what he must sell, at his margin, or margins, of gross profit, to get back his costs.

In the September issue of INDUSTRIAL CANADA Mr. Kirkwood argued that a standard cost system for manufacturers was both possible and desirable. In this article he suggests the outlines of such a system which would be applicable to all classes of manufacturing and likewise to retailing and farming. All costs, he points out, can be assembled under eleven standard headings and, when these are employed, the manufacturer will know each year exactly what it costs him to operate his business.

Looking at the Factors of Cost

Before proceeding to consider at some length certain of the factors of cost as indicated by the eleven group headings above, some of the simple and obvious factors can be disposed of quickly. Rent can be dismissed with a mention. Fixed expense will include rates and taxes, insurance, telephone, and such determinable and recurring charges. Advertising will include outlays for all forms of publicity. Miscellaneous items will include all sundry charges, for occasional travelling, occasional printing, postage account, wrapping or packing expense, janitor service, donations and subscriptions, repairs and renovations, lighting and heating. If it be desired to segregate any particular class of item comprehended under the general heading "miscellaneous," it can be readily contrived. Thus printing and travelling cost items may be large enough in the aggregate to be major cost factors.

Interest paid on borrowed money, or on overdue trade accounts, is a charge presenting no difficulties. As a credit against this charge can go, at the accountant's discretion, the cash discounts earned.

How to Charge Labor

Factors of cost requiring greater definition are labor, delivery, losses, depreciation, wages due capital and super-wages due capital for its protection. Taking them in order, we have first the item of labor.

The factor of labor in a manufacturing enterprise differs something from labor employed in the distribution of goods—in retailing and wholesaling, for example. In a manufacturing enterprise there are two kinds, or classes, of labor, the one kind comprising those employees engaged in the production of goods; the other class being employed in administrative, executive, and selling work. These two classes of labor require differentiation in the records of cost-accounting.

Direct and Indirect Labor

Labor employed directly for the production of saleable merchandise should be charged into the cost of the finished or semi-finished product. In a sense, this type of labor can be regarded as raw material which the manufacturer converts into saleable merchandise by combining it with fabric materials. Since it becomes merchandise, it cannot be charged as a cost of operation. It becomes product. Labor in this instance becomes material, able to be sold or marketed.

Labor of the other class, which has to be employed independently of the production processes, and which is used in the conduct of business—in its clerical and selling departments, and in its general oversight and maintenance—does not become saleable merchandise. It is not combined with or wrought into the product of the factory. It is occupied variously, and its service may go to many departments. Such labor, when charged against the product, to ascertain its complete production and selling cost is called indirect labor, and the amount of the charge to be made against the product, or against a unit of the product, is usually a calculated percentage, one calculated somewhat arbitrarily—a distributed cost.

Charging Delivery Labor

The labor, called direct labor, which is chargeable directly and immediately into the cost of the product, is a department charge, and should not be incorporated with the charges which constitute the cost of doing business. For the purposes of our enquiry—which is the cost of doing business—the labor which becomes merchandise, direct labor, it is called, can be passed over, and need not be dealt with as a cost-of-doing-business factor. The labor that becomes chargeable as a cost of doing business is the indirect labor, that engaged in administration, oversight, the general conduct-of-business operations, and selling.

One labor charge to be treated specially is the charge of wages paid to employees engaged exclusively in the delivery of goods. The items of cost connected with the delivery of manufactured merchandise constitute a group divi-

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HEAD OFFICE - TORONTO

sion by themselves. Delivery labor will be considered farther on.

Chargeable labor under the heading, labor, can be classified as follows:

a. Management and administration.
b. Executive and clerical, or office labor.
c. Factory and warehouse labor (watchmen, porters, cleaners, and miscellaneous low-grade labor generally).
d. Selling staff, which may include travelling expenses.

So dissected labor costs can be converted into percentages of total sales, and may indicate where and how labor costs can and should be cut down. Similarly, in respect of all other major group headings of cost, the constituent items may be classified under desired or revealing sub-headings.

The Cost of Delivery

In an analytical study of costs, the charge for delivery is important enough to require separation or segregation. Delivery costs in almost any manufacturing enterprise are high. Delivery involves the employment of special labor, special delivery equipment—horses, vehicles, stables, harness; or motor cars and garage, when motor vehicles are used. It involves the upkeep of delivery equipment. It may involve outpayments for freight, or express, or duty and insurance, and special packing or wrapping costs.

Delivery costs may be grouped as follows:

a. Wages and allowances to employees.
b. Stable or garage costs.
c. Freight, express, duty and insurance costs.
d. Package costs.
e. Sundry miscellaneous expenses.

These delivery costs may be a direct charge against certain departments or against certain classes of goods. If and when the delivery costs are not charged against products or departments on an hour-cost, or weight basis, they will have to be calculated and allocated arbitrarily, perhaps in the form of a percentage charge.

The advantage of making the cost of delivery a main cost factor is that it enables the manufacturer to know exactly what it costs him to deliver goods; and the advantage of analyzing delivery costs is that an indication may be given as to how certain economies in delivery cost may be effected.

The Cost of Losses

Losses of the common kinds should be charged as a cost of doing business. With some manufacturers, however, losses are charged directly against profits—this at the end of the year. This is not always good practice, though it may be the correct practice when the loss is extraordinary in character and of large amount—as may be should a treasurer or other employee be guilty of a serious and sizable theft, or should some accident of fire, or tempest, or of market conditions cause an excessive loss.

The fact is that, in many businesses, many losses are not charged up at all, no record being made of them. Losses due to bad debts, shrinkage, spoilage, petty thieving, weather changes, exposure, vermin, leakage, shortage, accident, injury, allowances, should be charged up faithfully, courageously, and fully, and be made a cost charge against the product. Whether or not this cost charge can be made a direct one against a department, or against a particular product, or whether it will have to be included with those costs which constitute general overhead, is a matter for individual determination.

Losses due to carelessness, or which are preventable, penalize the manufacturer fairly: they add their cost to the costs of doing business, and require for their recovery

the sale of more merchandise, or the raising of the selling price of goods. In either case, an added burden, which may be a handicap, is placed on the manufacturer's business.

If losses remain unknown, or go unrecorded, as a cost of doing business, they are losses just the same, with no provision made for their recovery; but when they are invariably and fully recorded, and made a cost of doing business, they are recoverable.

The omission of losses as a cost factor artificially reduces the percentage cost of doing business; in other words, costs are made to seem lower than they really are, and this deficiency, when the percentage on the cost to get the selling price is reckoned without provision for losses, becomes costly, and increasingly costly when the years are multiplied. A $5,000 losses omission per year joined to a failure to recover this sum, means a loss of $50,000 in ten years, and $50,000 is a very fair fortune for any man.

Charging Up Depreciation

Depreciation as a cost factor is so obvious that one would imagine that it could never be omitted; yet investigations have shown that more firms omit to charge depreciation as a cost of doing business than firms which do. As a substitute, many firms build up a reserve, and from this fund take the money required for the replacement of plant or equipment. This practice depletes the reserve, and may do so seriously. Far wiser is it to have a separate Depreciation Fund, which thus becomes a sort of sinking fund earmarked for plant and equipment replacement. The amount to charge up each year may be a general percentage of the total value of plant and equipment, or may be more specifically and accurately reckoned by dealing with each constituent unit of plant and equipment, making the amount of the annual depreciation relate to the probable "life" of the possession.

The Factor of Wages Due Capital

Many writers on cost-accounting affirm that interest on capital should not be charged as a cost factor in the conduct of business. This would seem to be the view of the State when it expresses itself on the matter of the costs of doing business in relation to individual firms and industries, for at various times the State has said that interest on capital shall not be charged as a cost factor. But capital is surely entitled to wages, as an employee of the business, just as is any other employee. It is readily granted that human employees of a business are entitled to an adequate wage or salary, and the same reasoning would seem to justify the payment of fair wages to employed capital. Capital's wages may be set down at five per cent. or six per cent. Capital can earn this wage safely and surely if invested in good bonds or mortgages. When capital is used in a business enterprise, it is entitled to its proper wage, and something more for its risking. But its due wage ought not to be left problematical, no more than should the wages due principals. Principals collect from the business an adequate wage, in the form of a salary, and presumably hope for a larger earning as a consequence of profits. It is for these problematical profits that they really labor and risk everything; but they properly require the business to compensate them, in the form of a salary, for their labor. In the same way capital may legitimately demand and receive a due wage—five per cent., or six per cent.

It is this wage of five per cent., or six per cent., due capital which becomes the super-earning of active principals with capital invested in their business. They draw

THE ROYAL BANK OF CANADA

INCORPORATED 1869

Capital Authorized	$ 25,000,000
Capital Paid Up	14,000,000
Reserve and Undivided Profits	15,000,000
Total Assets	393,000,000

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West Indies	47	Great Britain (London)	1
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their definite salaries, and receive the five per cent., or six per cent., paid their capital, in addition to their salaries. Similarly inactive shareholders, or bond-holders, derive their dividends, up to five per cent., or six per cent., as the case may be, from this wage paid capital for its use or employment. Theoretically this wage due capital, if and when earned, does not remain in the business, but goes to those who have invested money in the business. If this earning be re-invested in the business, then this is quite a separate matter: the re-investment becomes new capital, invested by individuals whose share or partnership interest thus becomes increased by the amount of the dividend re-invested.

Super-Profits Due Capital

In addition to the wages of five per cent., or six per cent., due capital for its use or employment, which wages go to shareholders and partners as a minimum reward for the loan of their capital to the business, capital should earn a super-wage. This super-wage is for the risking of capital, and is a legitimate cost charge. If and when earned, it can be applied as a credit to the reserve fund. Certainly it ought to remain in the business, up to a point, to protect capital—to make good to capital its losses or impairment through extraordinary or exceptional circumstance.

In almost every form of business endeavor there is some menace to capital. This menace is greater when the nature of the business is speculative, or when sales, or profits, are subject to severe variations because of changes in weather, popular demand, fashion, style, fluctuating market conditions, and so on. Also, the menace to capital may be contributed to by the inefficiency, or illness, or absence of the principals or executives. The point is: where the risk to capital is perpetual, or imminent, or beyond human control, there should be built up a reserve fund to offset the probability or possibility of severe losses to capital. So it becomes an entirely proper thing to charge operations of business with a sum each year—a percentage of the capital employed, for addition to the reserve fund. When this reserve fund is deemed of adequate dimensions, then the specific charge of a definite percentage of capital for addition to the reserve fund can be omitted; or if continued, and if earned, it can be made a bonus dividend to shareholders.

The annual sum, or percentage, to be charged as a cost item for the protection of capital will be arbitrarily determined, being regulated by past experience, or the special nature of the business. In businesses in which the risk of loss or impairment to capital is small, then the percentage to add will have correspondence. In business where sales and profits do, or may, fluctuate sharply, then a substantial percentage should be figured into the costs of doing business. Such inclusion of a percentage to protect the capital investment is a proper cost charge. It ought not to be regarded as profits, but as a cost. Profits are not earned until all costs have been provided for and met.

The Disposition of Excess Profits

When profits are earned beyond the dividends due shareholders, bondholders, or partners for the capital they have invested in the business, and beyond the sum credited each year to the Reserve Fund for the protection of capital, then they can be disposed of according to the decision of those in authority: they can be paid to investors in the business as a bonus dividend, or can be credited to capital for the expansion or strengthening of the business, or they

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can be split, part going to the Reserve Fund, and part going to investors in the business. But the first aim and obligation of those responsible for the conduct of a business is to make the business earn the minimum dividend due capital as wages, and the sum—a percentage of capital—due capital for its protection. If earnings in excess of these two objectives are realized, they can be regarded as superior profits, and if and when these superior profits are earned, then the operations for the year can be viewed as being highly satisfactory.

The Cost of Doing Business in Percentage Form

When the costs of doing business, according to the eleven classifications indicated above, have been ascertained and summed up, they should be calculated as a percentage of sales. This calculation is a simple operation. For example, if the costs of doing business are $50,000, and the sales are $500,000, then the percentage cost of doing business, as reckoned on the sales, is 10%. If the cost of doing business is $100,000, and the sales are $2,000,000, then the cost of doing business, in percentage form, as reckoned on sales, is 5%.

Having calculated the percentage cost of doing business on sales, the next step is converting this percentage as reckoned on sales into the equivalent percentage as reckoned on cost. This conversion operation is simple. The formula is:

$$\frac{\text{The percentage cost of doing business as reckoned on sales} \times 100}{100 - \text{the percentage cost of doing business as reckoned on sales.}}$$

But in common practice, the operation consists in putting down the percentage costs as reckoned on sales, with ciphers added, and dividing by the difference between this per cent. and 100. For example, when the percentage cost of doing business on sales is 10%, the conversion calculation is:

90) 1000 (11.11%=the right percentage to add to the *cost* of goods.

Similarly, if the percentage cost of doing business as reckoned on sales is 16.45%, then the conversion operation becomes:

8355) 164500 (19.69%=the right percentage to add to the *cost* of goods.

NOTE: The underscored figures when added together make 100.

The Illumination of Percentages

The advantage of making this calculation is that it enables a manufacturer to check up his average percentage-over-cost-requirement with what he is actually getting. Thus, one department's product, when sold, may be yielding a percentage advance over bare production cost, of only 7%, whereas the percentage advance over cost in connection with another factory product may be 15%. It is clear that if the average requirement is 10% per cent. over cost on total sales—this to liquidate all operating costs—then the volume of sales of the product yielding 15% over cost must be sufficient to compensate for the loss of 3% sustained on the volume of sales of the product on which only 7% advance over cost is obtained.

Creditors Should Insist on a Standard Cost System

Our purpose from the beginning has been to demonstrate the applicability of a standard cost accounting system to all classes of manufacture. The standard cost system outlined is applicable to every form of business—to manufac-

The Merchants Bank of Canada

Head Office, MONTREAL — Established 1864

Paid-up Capital	$ 7,000,000
Reserve Funds	7,421,292
Total Deposits (May 1918)	120,000,000
Total Assets (May, 1918)	153,000,000

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turing, retailing and farming. It can be used by the maker of bricks, motor cars, soap, pianos, baking powder, ships, lumber, jewelry, and all things else; it can be used by retailers large and small; and it can be used by farmers.

The point is urged that bankers and other creditors of business firms should require all statements provided by solicitors for credit to be standardized in the matter of essential particulars, and that the operating costs supplied to a creditor should be assembled under the eleven standard heads indicated. Repeated these are:

1. Rent.
2. Fixed expense.
3. Labor.
4. Delivery.
5. Advertising.
6. Miscellaneous items.
7. Losses.
8. Depreciation.
9. Interest paid on borrowed money.
10. Interest or wages due capital.
11. Super-wages due capital for its protection.

A statement of operating costs, under these main heads, can be set forth in analyzed or dissected form, as may be desired. The extensions should be set out under three heads —Total in dollars and cents, percentage as reckoned on sales, and percentage as reckoned on bare factory or production costs.

A statement of sales should be required, and the sales analyzed to show the volume of sales of each class of goods and the percentage advance over cost obtained.

With such a record before him the banker or other creditor will be able to see where costs are excessive and where volume of sales is inadequate. Furthermore, such a presentation of the costs of doing business and their relation to sales, and such an analysis of sales, would be of extreme value to the management of a business, and would become the basis for essential revisions, economies, and strengthened and directed selling effort.

The Advantages of Adopting a Standard Cost System

It is granted that the cost accounting system now in operation in many factories, while varying more or less sharply from the one proposed in the matter of the grouping of cost factors, may in essence yield, in the summing up, the same aimed-at results. But this is not the point. The point is that a standard or uniform method of grouping and summarizing costs should be adopted by all manufacturers in their own and in their creditors' interests. This point is urged in view of the known fact that 90% of the manufacturers of Canada and the United States do not know just what their goods cost them to produce and sell, and that many—very, very many—omit certain essential factors of cost, as a consequence of ignorance, or of failure to have a comprehensive cost system. To know one's costs definitely and thoroughly is a prime requisite of the successful conduct of business, and is a clear index to what the sales must amount to if all costs are to be recovered. When a manufacturer knows thoroughly his costs of production, administration, maintenance and selling, he knows exactly the extent of the selling effort necessary to attain his objectives. That is, he is not left in the dark as to the measure or quality of effort required to limit his costs and to achieve a minimum volume of sales, which sales must provide an adequate gain over cost.

If a manufacturer knows that his cost of doing business as reckoned on his sales is 10%, and that these costs are likely to total $80,000, then he knows on the first of January—the very first day of his selling year—that his sales must total $800,000. In other words, he knows that goods costing to manufacture $720,000 must be sold for $800,000. This means that his average monthly sales must be $66,666, and that his average daily sales must amount to $2,500. All this he *knows* from the beginning. Having this definite

knowledge, the manufacturer knows that these sales must yield a gross profit in the year of $80,000, or $6,666 per calendar month, or $250 for every week day.

The foregoing cost system has been defined and illustrated, in the hope that it will induce many to use it, and that it may give a push forward to the idea of a standardized cost system—one that may, in time, be made compulsory by both creditors and the law.

Bank of Montreal's Report

Total Assets Reported to be in Excess of Five Hundred and Fifty Millions

The strength shown by the Bank of Montreal, as indicated by its recently published annual statement, inspires confidence in the ability of the country, through its banking institutions, to pass safely through the readjustment period. With its total assets in excess of five hundred and fifty millions and its liquid assets exceeding three hundred and seventy millions, the Bank stands in a remarkably strong position. Throughout the uncertainty of the war period, while lending fullest assistance to Canadian industry, it has steadfastly followed and counselled a policy of keeping strong. As a result the transition to peace conditions finds the Bank in exactly the position it desired to occup when the change came.

The very unusual strides made during the year are due in part to the absorption of the Bank of British North America; but at the same time, month by month the Bank has forged ahead and with its large resources has been able to lend fullest assistance to both the Imperial and Canadian Governments as well as looking after the growing requirements of a considerable portion of Canadian municipalities and industries.

Just how great has been the progress made during the past few years can be appreciated from the fact that in 1914, the first year of the war, the total assets stood at $289,562,678, while to-day they have increased to $558,413,546. Liquid assets alone now stand at $370,351,000, being $80,000,000 above what the total assets were four years ago.

The past twelve months have witnessed steady expansion, even allowing for the absorption of the B. N. A., and now the total assets stand at $558,413,546, compared with $403,980,236 at the end of the previous year. Liquid assets total $370,351,651 and are equal to 71.28% of the total liabilities to the public and compare with $276,298,397 last year.

The measure of assistance lent the Dominion and British Governments is reflected by Dominion and Provincial Government securities of a value of $46,870,586 as compared with $28,573,322 a year ago and Canadian Municipal Securities and British, Foreign and Colonial Public Securities, other than Canadian, of $52,085,835 up from $33,455,254. The expansion of the general commercial business is indicated by Current Loans and Discounts of $146,028,861, as compared with $97,607,404, while at the same time Loans to Cities, Towns and Municipalities have gained to $15,598,069 from $11,415,383, and Current Loans and Discounts elsewhere than in Canada $14,649,836 up from $10,045,811.

That the policy of thrift so strongly advocated by the Bank has been followed in a large measure by the people of Canada is shown by the increase in interest bearing deposits to the record level of $345,552,764 as compared with $246,041,786, a gain of almost One Hundred Million Dollars, while deposits not bearing interest stand at $124,175,047 up from $71,114,641. As there is no increase in the Bank's capital stock in connection with the purchase of the Bank of B. N. A. it is assumed the amount required to redeem the shares of that institution has been set aside and included in the total of non-interest bearing deposits.

The more favorable conditions under which the Bank has operated during the year have resulted in a slight increase in the profits, as compared with the previous year. The profits amount to $2,562,720, equal to 16.01% on the capital and compare with $2,477,969 in the previous year. These profits, added to the Balance of Profit and Loss brought forward, made the total amount available for distribution $4,227,613. Of this amount dividends and bonuses required $1,920,000, War Tax on Bank, note circulation, $160,000, Subscriptions to Patriotic Funds $46,000, and Reservation for Bank Premises $200,000, leaving the balance to be carried forward to Balance of Profit and Loss of $1,901,613, as compared with $1,664,893 at the end of the previous year.

National Brick Co.

Proposal Made to Reorganize the Company with Considerably Smaller Capital

The National Brick Company, of Laprairie, which started on its career a few years ago in a blaze of glory and later fell on evil days, is now being reorganized. Mr. A. A. Ayer, the president of the company, wishes to form a new company, to be known as the Laprairie and Delson Brick Co., and to exchange securities of the old company for those of the new.

The circular is signed by A. A. Ayer, R. M. Ballantyne, H. R. Trenholme and T. B. Macaulay.

The old company was capitalized at $2,319,100 bonds, and $2,000,000 capital stock, in addition to which scrip had been issued to the bondholders to cover deferred interest payments from October 1st, 1915, to April 1st, 1918. The deferred interest up to February 28th last was $450,036.

The circular proposes that the new company should start off with an authorized and an issued capital of approximately the following:

	Authorized	Issued
Bonds, 6% 30-year	$3,000,000	$2,319,000
Preference stock, 7% cumulative	1,000,000	531,000
Common stock	2,000,000	1,450,000

The new bonds are described as "income mortgage," "interest on some to be cumulative, and payable when earned; but the company to be in default unless 2 per cent. of the interest be paid not later than April 30th, 1922, and a further minimum of 2 per cent. be paid in each year thereafter. These bonds, or any portion of them, to be redeemable at par and accrued interest at any interest date." The exchange from the old into the new bonds would be a straight par for par.

This plan is opposed by Mr. J. N. Greenshields, a former president of the company. He states that he will take legal proceedings to force the company into liquidation.

Removed to Toronto

Industry Leaves Alexandria, Ontario, and Settles in New Premises in Toronto

The Canadian Bond Hanger & Coupling Co., Limited, announce the removal of their stock and equipment from their old plant at Alexandria, Ontario, to their new plant at Villiers and Munition Streets, Toronto. The new plant, which is modern and up-to-date in every respect, will give the company an increased production capacity of at least 100 per cent. With the ground purchased adjoining the plant, its capacity for expansion is practically unlimited. The company were established in their new quarters on November 20th.

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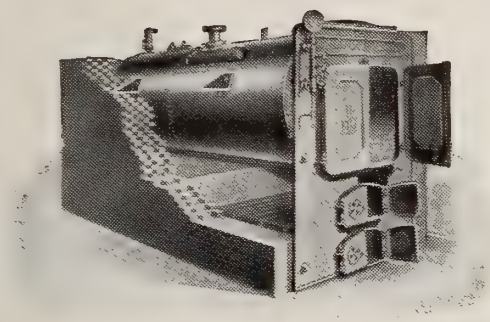
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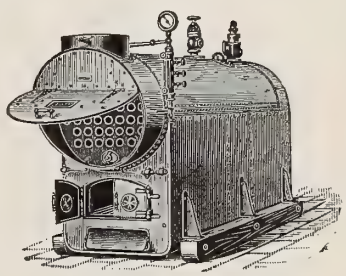
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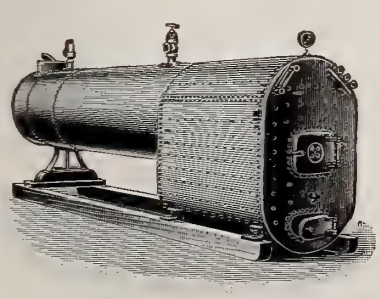
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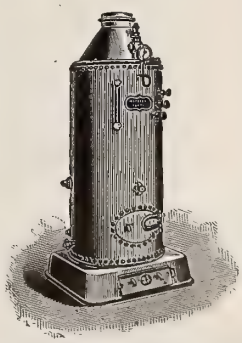


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Good Things from Other Magazines

The Commercial Policy of the Empire*

The welfare of the Empire must rest upon the basis of a sufficient supply of raw materials. But unless a policy is adopted which provides a market for the disposal of the finished product, it is obvious that on the one hand the Dominions will have no certain market for their raw materials, and, on the other hand, manufacturers will not feel justified in the expenditure of capital and expansion of plant necessary for the fullest development of industry

By RT. HON. W. M. HUGHES

Prime Minister of the Australian Commonwealth

(From the "British Empire Review.")

WHEN I was in England two years ago I emphasized again and again the fact that the relations between modern economic interests and national welfare are so intimate and so complex that they cannot be treated as though they were not part of one organic whole. The British Empire does not consist, as some—I think I may say without offence—seem to imagine, of Great Britain alone. The Overseas Dominions, which are, in all save name, independent nations, have vast territories to develop, great interests to consider. In twenty-five years, at the present rate of increase in Great Britain, and Canada, Australia, New Zealand, and South Africa, the population of the Dominions will not be very far short of that of Great Britain to-day; in fifty years it will have outstripped that of Great Britain at that time. The problems that confront the Dominions are complex and difficult, but the Dominions desire to advance to their great destinies hand in hand with each other and with Great Britain. The question of what is to be the trade and general policy of Britain after this war is one of vital importance to them, and some indication of what that policy is to be ought to be disclosed without delay, for the future trade policy of the Empire will depend largely upon that of Britain, and you cannot effect a radical change in the trade relations of an Empire like ours in a week or two. Of course, if Britain is simply going to get what it wants from Germany, as it did before the war, the matter is very simple. But if not, then the producers of Britain and the Empire ought to be told what the trade policy of Britain after the war is going to be, so that they can make their arrangements accordingly. The policy of *laissez-faire*, to which Britain clung before the war, disregarded entirely the fundamental fact that an economic policy which takes no heed of national safety must inevitably undermine the nation's greatness. We escaped destruction by a miracle. By the policy of *laissez-faire*, which left our citadels open to the enemy, welcomed him with open arms, gave him control of the keys of national and economic life and death, we were almost lured to destruction. And the very men who now criticize me because I have ventured to remind the citizens of the Empire of the dreadful danger which so nearly engulfed us, these very men who now bid the people of Britain refrain from preparing for peace, bid them follow their lead and hold out the right hand of fellowship to the Hun, these pacificists, these defeatists, these Little Englanders, Little Navy men, are the same men who laughed to scorn the dangers of war, who would not prepare for war, who did everything in their power to place the neck of Britain under the iron heel of Germany. These pacificists, these gentlemen who speak of our dear brother in Germany, are the men who, by their counsels and actions, brought Britain to the verge of destruction. They bade the people of Britain turn a deaf ear to the most solemn warnings of the wrath that was to come. The men who nearly destroyed Britain, and with her the Empire, now urge the people of Britain to accept them as their leaders!

Sir, I was here in 1907. I never doubted Germany's purpose or for the need of a scheme of defence that would thwart that purpose. I am glad to think that I advocated compulsory service in England in 1907 as I did in Australia; that I was one of those who supported that great man, Lord Roberts, who warned the people of the danger that threatened them. Those people who denounce us now denounced him then. But time has proved him to be right, for if Britain had been one-quarter as well prepared on land as she was on sea Germany would never have dared to make war. Germany recognizes that national greatness and national security depend in the last analysis upon the economic prosperity of the country. For whether your ideal be Might or Right, the form of government under which you live Despotism or Democracy, the safety of the nation depends upon the well-being of the individual citizen, upon the general prosperity of the country, upon the opportunities for profitable employment of labor and capital. The thing that matters above all other material things to the people of Britain, of the Empire, and of our Allies is that they shall be, and shall remain, economically independent of Germany after the war; that the conditions precedent to and necessary for abundant and regular employment at good wages and decent working conditions for the masses of the people shall exist; that our soldiers coming back shall find a place prepared for them worthy of their heroism, their endurance, and their sacrifice.

The Radical Committee

Now this brings me to a point where reference to some recent criticisms of my actions and utterances may be made. I have incurred the sharp censure of some people because I have urged Britain to take such action as is necessary to ensure the national safety and economic welfare of the Empire. These gentlemen do not seem to understand the

*Speech by the Australian Premier at a meeting of the British Empire League, held in the Egyptian Hall of the Mansion House, London.

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nature of the struggle in which we are engaged. They do not understand the purpose of our enemy, or else are willingly blind to it, and they most certainly do not understand that the policy I advocate is one not merely for Britain but for the Empire; and, indeed, not for even the Empire alone, but for all the Allies. They seem to forget that it is not only Britain that is at war, but the Empire; that this great war is not a matter that concerns Britain only, but the whole Empire. They seem to forget that although the Dominions were not consulted as to the declaration of war, but were in the very nature of the ties that bind us together and the cause for which we fight involved equally with Britain, yet now we are in it we have as much right to be consulted as to the conduct of the war, the terms of peace, and all other matters relating to the war as Britain herself or any of her Allies. They do not seem to understand that this war is a war between nations, that it vitally concerns every phase of our national and individual lives, that its effects upon industry and commerce are tremendous, that these effects will not pass when war ceases, but will profoundly modify the economic outlook of the world. They do not seem to understand how this war with Germany has affected the Empire, how it has affected Australia for example. Before the war we sold to Germany large quantities of our raw materials, wool, metal, and other things. Well, we do not propose to renew our trade relations with "our dear brother" after the war, and it is our hope that these raw materials which formerly went to Germany should be available to Britain and her allies. But this involves the adoption by Britain of some plan, some policy, some organization which will ensure first the utilization of these raw materials in manufacture, and secondly, an adequate market for the finished article.

The welfare of this Empire must rest upon the basis of a sufficient supply of raw materials. But unless a policy is adopted which provides a market for the disposal of the finished product, it is obvious that on the one hand the Dominions will have no certain market for their raw materials, and, on the other hand, manufacturers will not feel justified in the expenditure of capital and expansion of plant necessary for the fullest development of industry. So that even from this standpoint, which is merely one phase of the great question, clearly the economic policy of Britain is one which vitally affects the Dominions. Our critics do not seem to comprehend that it is because Britain thoroughly recognizes the right of the Dominions to discuss questions of national importance that representatives of the Empire are now gathered together here. Are these people, whose outlook seems to be incredibly narrow, petty, parochial, and partisan, who stand huddled together in a corner, talking as though they represent Britain, whereas, they are but political tailors of Tooley Street, incapable of realizing that the destiny of Australia is as much dependent upon the issue of this war, and upon the attitude of Britain towards enemy trade and economic policy after the war, as is that of Britain herself? Do they not understand that upon the economic policy of Britain depends the future of the Empire; that the different parts of the Empire, although enjoying complete autonomy, and being, in fact, independent nations, yet are so bound together by ties of blood, of common ideals, of common interests, that the policy of Britain will most materially affect our future? These gentlemen talk as though the economic policy of Britain, which so vitally affects not only the national but the economic future of the Dominions, were a matter upon which we should not be allowed to express an opinion. The fact is that if I spoke as they would have me

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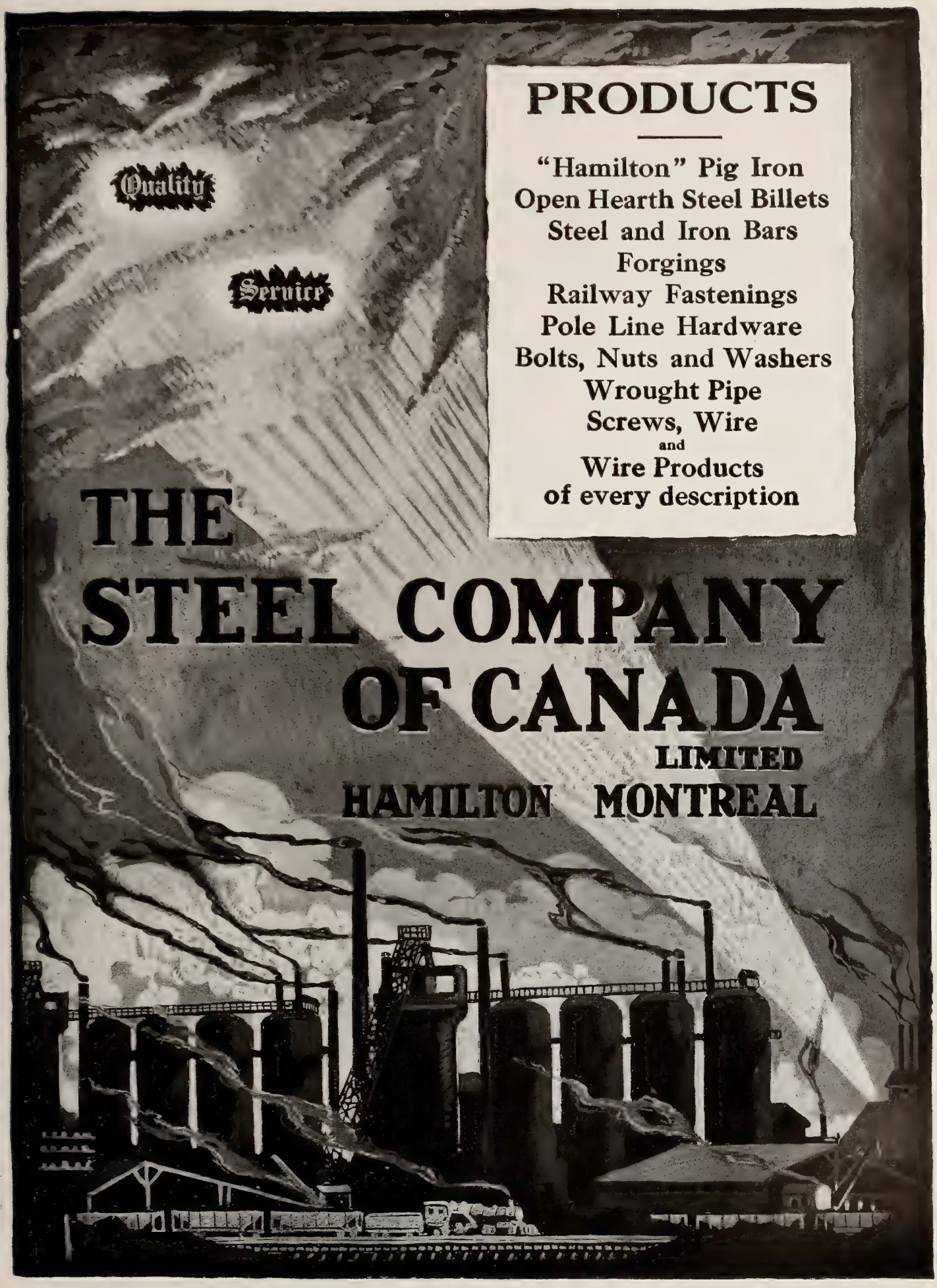
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do, that is to say as a pacificist, a defeatist, a friend of Germany, they would welcome me, but as I am none of these things, not even a Bolshevik, they denounce me.

Australia has put into the field an army larger than ever did Britain in all her history before this war. This war has completely disorganized our domestic policy and our trade; it has created conditions which can only be effectively grappled with—if we are to remain part of the Empire—by action on the part of Britain. And yet these gentlemen talk of the great post-war problems as though they were matters upon which the representatives of the Empire have no right to speak. In the twentieth century they speak as though they still lived in the days of Heptarchy. To ensure the nation's safety and economic welfare of Britain by the development of the resources of the Empire, to sweep all German interests out of Britain, these are not British but Imperial questions, as the stamping out of an epidemic in Bradford would not be a Yorkshire question, but a question that affected the whole of Britain.

A Life and Death Struggle

After referring to the firm of Mertons in very strong terms, Mr. Hughes continued: Sir, the Australian soldier has not waited in Australia for the German to come to him, but has gone out and fought and is fighting the German all over the world. And I am here fighting the German in this citadel of Empire, and will continue to fight him until he is utterly destroyed. What is true of metals is true of trade generally. We are fighting a life and death struggle with Germany; Germany is out to secure economic domination of the world, and we must take such steps as are necessary to secure our economic welfare in order that we may ensure our national safety. If Germany is allowed to secure our raw material, either directly or indirectly, then her national greatness will wax and ours wane.

War Has Destroyed Landmarks

Some of these gentlemen who do me the honor to denounce me have evidently never attempted to understand what it is I advocate. They talk about protection and tariffs, as children talk about bogeys, seeing them behind every bush; but we ought to approach this question as sensible and patriotic men, sober and grown wiser by the bitter experiences of this great war. What have doctrines, traditions, or precedents to do with us? This war has destroyed all the landmarks of the world in which we used to live. Every day we confront a situation without precedent, we see cherished doctrines swept indifferently aside, ancient traditions buried beneath the burning lava of war. Nothing matters but that we should learn by experience to no longer waste our time in profitless doctrinaire discussions or drift into the backwaters of inaction, but act, and act promptly. I am concerned only with results. What I want is a policy that will ensure to Britain, and her Allies, too, an adequate supply of raw materials, that will encourage the production of such raw materials as the Empire produces or can produce, will prevent this or any other market within the Empire being the dumping ground of German goods, will enable Britain and the other parts of the Empire to hold their own in the home and foreign markets. If my friends, to whom a tariff is anathema, can formulate such a policy, why do they not do so? Why do they range themselves alongside the Germans in our midst, and support the very policy that Germany desires we should do? How can the policy Germany desires Britain to adopt be a good thing for the workers or the employers of Britain, or for any citizens who love their country and desire to see it prosperous and happy? I have no quarrel with any man

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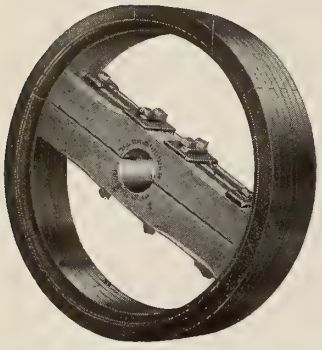
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because he believes in free trade. I have said over and over again that I do not pin my faith to tariffs, but to organization; or, in other words, to the adoption by each industry of such methods as will equip it most effectively for the competition for trade after the war. To every disease apply the appropriate remedy. That is what I have advocated. But in such cases, where the remedy called for is clearly a tariff or a bonus, are we to hesitate to apply it because in 1849 somebody said or did something, or because such action will annoy Germany? Are my friends against organization of industry? Will they, in the face of the wonders that organization has worked for war, say that we ought not to organize for peace? Will they tell us just how they propose to deal with the after-the-war problems, and how they are going to provide employment for the millions of men and women whom peace will throw idle? Will they tell us that there is no need for organization to deal with such a tremendous problem?

Policy of Imperial Preference

It would not be out of place to remind our critics that, although the Government has not definitely declared its general economic policy, it has taken certain steps which are quite incompatible with a return to the *status quo ante bellum* policy. It has formally adopted the Paris Economic Conference resolutions. It has declared in favor of a policy of Imperial preference. It has withdrawn from the German Sugar Convention. These are great things. Time will not now permit of an examination of all that they involve. But they are certainly calculated to give our German brother furiously to think. Whatever has been done, however, is but a fraction of what we yet must do. We have dealt with one or two industries; we must deal with all. We have endeavored to secure some markets for British goods; we must secure all that we require. But how is a market to be kept? If you inquire whether duties alone will suffice to keep the market for the British producer, I say frankly that in some cases they cannot. We must look at this question as a lock-keeper looks at the water running from the higher level into his lock. We must regulate, we must control, trade so that it serves our interests, national and economic. Every industry, in short, should be given the encouragement that its circumstances demand. To every problem you should bring that broad outlook which is demanded of men who seek first of all to ensure the safety of their country, and, secondly, to establish an economic structure upon a sound and lasting basis. You may resort to subsidies, to bonuses, to duties, to prohibition; but in all respects you are to control fate and not allow yourselves to be washed along like corks in the tide of circumstance. There is not one thing to do, but many; and you might as well dictate a hard and fast policy to a captain of a ship as endeavor to lay down a formula by which this nation can be saved. Let us approach each question on its merits, look at what is to be done, and allow no theory, no doctrine, no preconceived idea to prejudice our minds. In the name of all that is sacred, in the name of our nation and of our race, let us come to this great question with open minds, seeking only one thing—namely, the salvation of our people, the uplifting of our Empire, and the lasting peace of the world.

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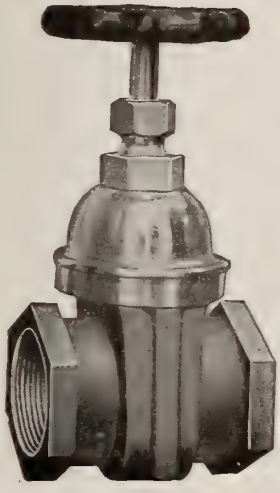
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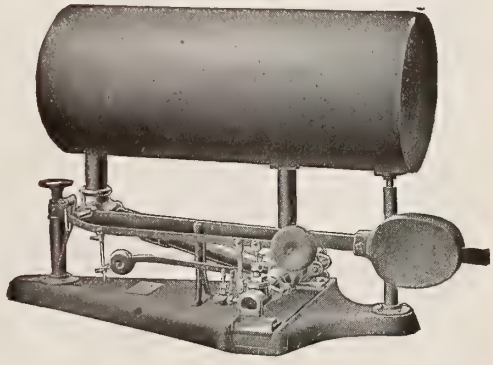
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By N. CAUCHON
(Address before Rotary Club of Hamilton)

Last year we discussed the "Economics of Housing" on Ruskin's great dictum that "There is no wealth but life." It is from the same viewpoint that I urge consideration of the settlement problem—efficiency.

The present war is a new starting point for humanity—one of the great milestones of social evolution, and it is out of the wreckage of the past of its ideals and its errors, that we must reconstruct our home—our league of nations. Recuperation will rest upon production to maintain life—and upon its use in the furtherance of civilization.

The process of mental development from the pre-historic has been mainly ascribed to the quickening necessity of tools, weapons—handicraft for survival—also to the innate desire for expression, as shown in cave drawings and symbols—for communication of ideas—attained through art.

We may thus claim manual training and art as the educational essentials, the basic agencies in the development of reflective mentality, that is, reasoning power. The rest of education is but the specific application of that power.

Civilized man may be summed up as an equation of "Heredity, Education and Environment"—answering in a degree of efficiency.

Now, after the war, there will arise a world-wide competition in production to maintain ourselves—and to pay our debts with the surplus of export. We will need the exertion of every unit of manpower to its maximum of production, and that maximum will be sealed to the measure of individual and of collective efficiency.

It is in the light of this reasoning that I claim our National Settlement Policy should be one of reclamation and of development of the heart of the country, where intensive cultivation aided by irrigation will enable denser population enjoying the amenities of life that devolve from closer co-operation—good roads, better schools, doctors, and the sociological conditions that also determine environment. Further, on the economic side, intensive settlement and cultivation enable maximum production from each unit of manpower. On the contrary, whilst admiring the heroic courage of those who emulate our forefathers in pioneering, the process of developing the frontier takes long years of struggle and cumulative effort of minimum production per unit of manpower. Efficiency will determine the measure of our regeneration and our material recuperation will rest upon a development of our natural resources—of which land is the greatest. With cheaper land and attractive conditions of living, we ought to be able to draw heavily upon the agricultural population of the States.

Ontario Losing Rural Population

I have pointed out in other addresses that Ontario has been steadily losing its rural population for the last thirty years and that Quebec has lost a million or so of its population to the New England States because the opportunities and attractions of life were greater elsewhere. We have to compete for population as in any other line of production and it is as important to manufacturers, if not more so,

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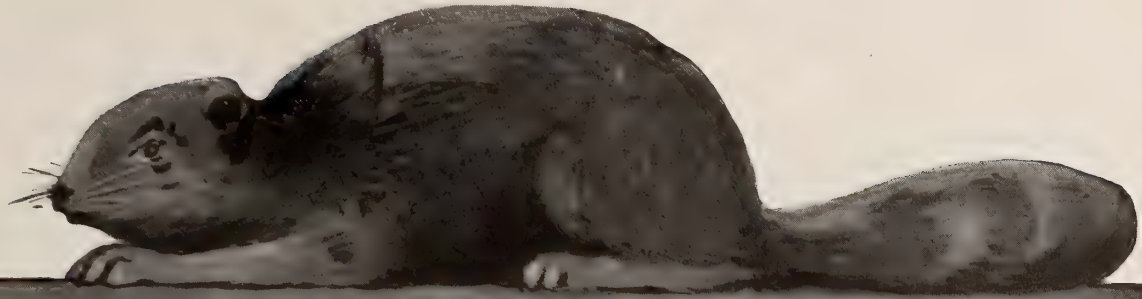
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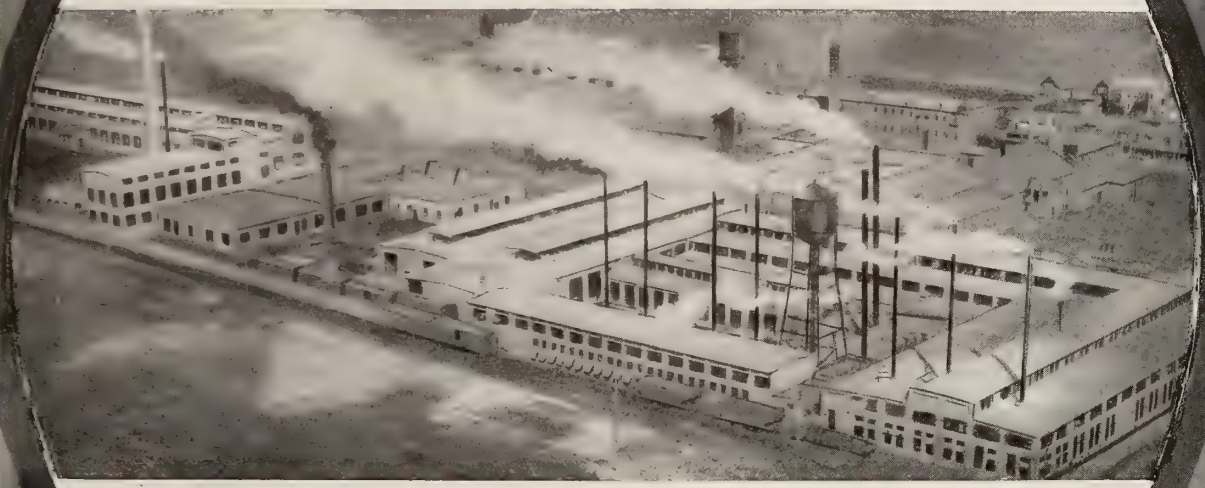
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than to any others, that we should be successful in keeping and in increasing the population of the country. If I may repeat, a greater, denser, hardier and happy rural population, producing more raw material, consuming more finished material, supplying abundant food, cheaper living, availing inexhaustible and more intelligent manpower, is the best backbone for the nation and none the less for the great industrial city.

Statement of Returned Soldiers

A word as to the returned soldier—his settlement scheme must be economically sound as any other on its own merits, maximum production, not minimum. Far more, the home that is offered him must be a reward, not a hardship—let there be provided for him opportunities around the towns and cities where he may thrive under civilized conditions, and where his wife and his family may likewise profit by the advantages of environment.

Cities, industrial communities, face other problems, for instance, that of unemployment during after-war conversion of industry, during which, if you are not to lose population, great public undertakings, employing the greatest possible variety of labor, must be fostered to absorb and hold population. I refer here to the opportunities of employing this labor in remunerative schemes of land reclamation, canals, civic improvements, etc. It is wise to plan and provide for such schemes against the day of reckoning. I might recall, as an example, how the business men of Bridgeport have faced this situation by providing a fund of a million dollars to cope with the contingency as it develops.

What I foresee and dread is that when the war suddenly ceases, there will be many men out of employment until the industries can adjust their conditions to producing the other articles to supply our own need, equalling the abnormal waste and shortage caused by war—what we require is some means—work—for temporarily holding the workmen of the cities till they can be taken on again for this new market and which must be enlarged beyond our abnormal home requirements to offset as well the exchange that is now so much against us. Our production now is admittedly abnormal beyond our national need. The question may be raised, do we need to hold means of production on that scale? The answer, undoubtedly is, that owing to the depletion of stocks and the wastage during the war years, when our national needs could not be met, will necessitate an abnormal production for a number of years after the conversion of industry and which should be maintained till the natural increase of population so overtakes it that what has been abnormal will become but normal output.

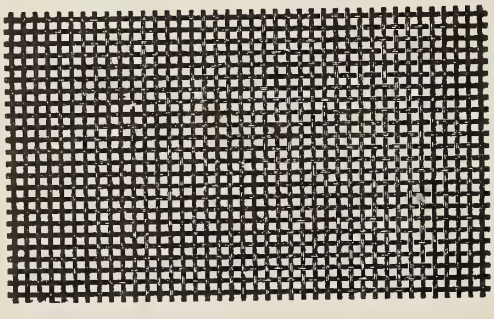
If we lose this population it will operate against us in several ways—in the loss of consumption by the home market, and, further, it will deplete our labor market, which means a loss of productive power—the loss of capacity for cheap production in world competition. There thus appears a great necessity of holding our industrial population. There arises, also, a handicap against us by reason of our proximity to the immense industrial activity of the United States, which offers an economic temptation to exodus at any time.

Competition of United States

If, after the war as I see it, the United States be with proportionately less debt, lower taxes; milder climate and less cost of heating; cheaper clothing and less need of it; fair wages and good housing and the conversion of her industries provided for with forethought, she will offer economic inducement to immigration and if she should absorb our floating out-of-work industrial units of man-

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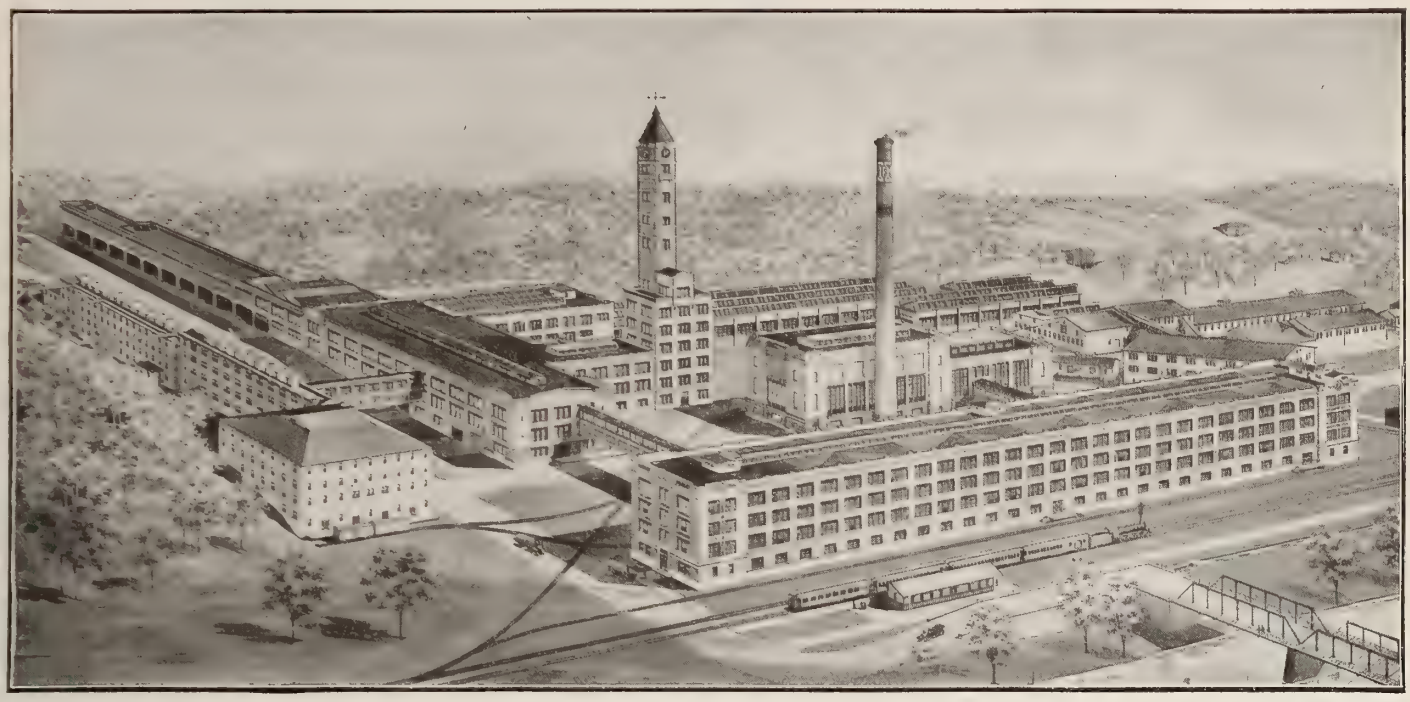
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power, it might be very difficult for us ever to recover them and our present industrial power of production. Another consideration which I have elsewhere advanced, is that the stupendous shipbuilding output of the United States will leave it, the war over, with a formidable merchant marine to expand their exports and which will still further react to the stimulation of their industrial development.

Many solutions have been submitted from various sources and from many points of view, interested and otherwise—but the main necessity for the moment is an awakening of the public mind to the consideration and discussion of the issue that the people of Canada may arrive at determining in time a solution upon which united action can be forthcoming.

Color Blindness

An important Public Health Bulletin on this subject, by Dr. G. L. Collins, recently issued, leads the author to the following conclusions: Color blindness is best detected by testing with colored lights of known spectral composition. The Eldridge-Green lantern will satisfactorily divide the color blind into the dangerously color blind and the harmlessly color blind if the test is properly applied. The Jenning's self-recorded worsted test should not be used for testing sailors or trainmen, but possesses certain practical features which render it superior to other tests where great accuracy and a classification of color defects are not essential. Among healthy persons in this country about 8.6 per cent. of men and 2.2 per cent. of women are color blind. The condition is dangerous in about 3.1 per cent. of men and 0.7 per cent. of women.

PROFIT SHARING BY EMPLOYEES

Plan under which payments rise and fall or disappear according to the extent of each year's profits, does not appeal to the worker —An alternative plan suggested which gets over this great difficulty to a certain extent

By A. T. DRUMMOND, LL.D.
(From the "Monetary Times")

The remuneration of the workers in industrial establishments is, as a rule, based on what other industries pay for similar work. It is only within recent years that the important part which it is possible for skilled workmen to take in helping to maintain the reputation of the undertaking, and to build up its profits, has been specially recognized by giving to them, in addition to their wages, some share in the profits, along with the shareholders or partners in the enterprise. In numerous instances efforts have been made to develop a workable plan, and many have been the failures. Some were too complicated for the average man to understand, others taxed his patience for too long a time before the division of profits took place, whilst others required him to take and pay for stock in the undertaking, which in many instances involved a liability and a risk he was not in a position to assume, considering his limited means. He has to be regarded as one of the workers, practically without capital, and yet, as a party most desirable to interest directly in the prosperity of the undertaking. How, then, can his case be reasonably met?

Profit sharing by employees implies that there are profits to share, and that, as these rise and fall, or disappear alto-

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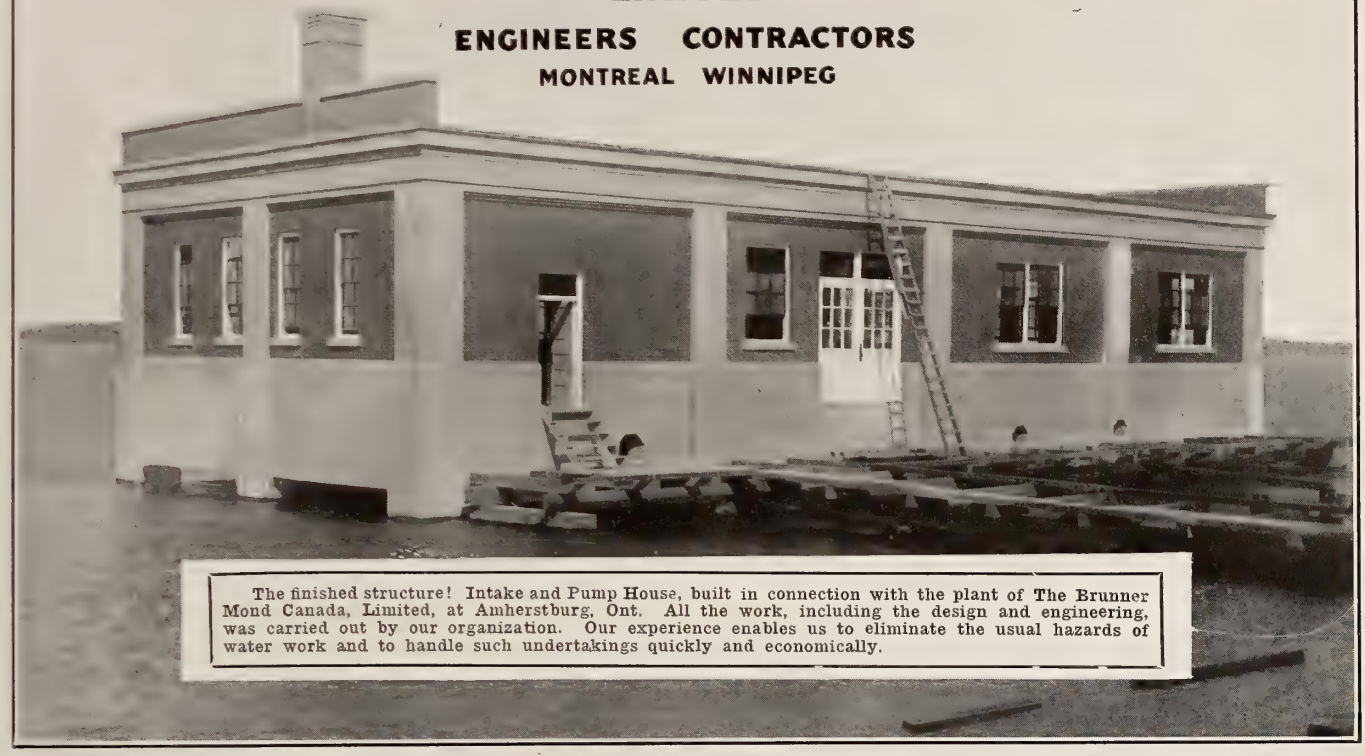
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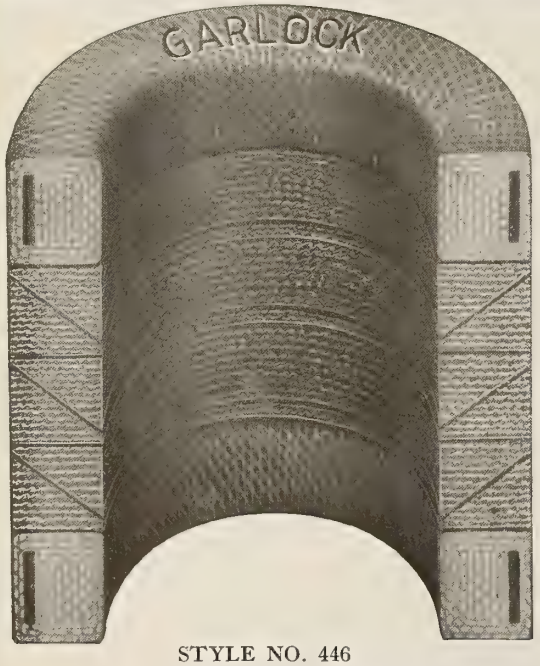
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gether, the return to the employees from them must vary from year to year, or, possibly, occasionally vanish. This is just where it must always be difficult for employers to carry the workers with them. The latter look forward to a definite return for their services, payable at short intervals, and where these services are the same in different years, the contingencies of the market, or mistakes in management, which may diminish or altogether wipe out profits in any year, do not appeal to the workers as properly affecting their wages or their other interests in the undertaking. This, then, leads to the question whether their share in the profits could not be made an annual charge against revenue, irrespective of the amount of the profits in each year, the larger profits of a successful year being made to bear any excess required for the workers' share in less successful years. On the other hand, the workers' return from profits should properly be in some way proportioned to the services rendered by them, and, under present conditions and as a general proposition applicable to all workers in the industrial establishment, this can only be done by taking wages for a definite period, suggestively a year, as the criterion. It is not possible to gauge the value of the services of the worker who is here to-day and there to-morrow. Thus the wages earned by an employee in a given year would furnish the basis on which, during the next succeeding year, a definite percentage upon them would be payable to him out of the profits, in addition to his usual wages. Only employees who had been working throughout the whole, or for a fixed portion, of the preceding year would thus participate in this percentage.

A Suggestive Plan of Profit Sharing

This leads to a suggestive plan that on the salaries and wages earned by the workers during the previous year a definite dividend of, say, 10 per cent. thereon should be annually given, irrespective of the amount for the year, of the total profits of the firm or corporation, and should be disbursed in quarterly instalments, or more frequently if desirable. This fixed annual dividend of 10 per cent. might, however, be increased to whatever rate per cent. above ten was declared in any year as a dividend to the shareholders or partners in the company on their capital. In the working out practically of the suggestion, an employee who had earned, for instance, $1,000 last year, would be entitled this year, in addition to his wages, to $100 in quarterly payments; or, if the shareholders' dividend on their capital in the enterprise was 15 per cent., the employee's addition from the profits would be increased to 15 per cent., or $150. Thus the employee could look forward to this return at the end of each quarter, like the interest on a bond. The prospect of an increase in the rate, if profits were large, would act as a stimulus to him in his work, whilst the taking of the previous year's wages as the basis would result in steadiness of work during the current year, in order to maintain or increase the basis for the next year. The points aimed at are definite sharing of profits on an easily comprehended plan, prospects of an increase whenever the general shareholder receives a higher rate, frequent distribution, steadiness of work, and stimulus in production, whilst there is the important sentimental effect on the employee of personal interest in the enterprise through sharing in its profits.

Of the proceeds of the Victory Loan, about $175,000,000 will go to meet floating indebtedness incurred in the provision of credits for munitions and so forth during the past few months. Of the remainder, between $200,000,000 and $250,000,000 probably will go to the provision of credits for wheat, foodstuffs and other purchases on account of the United Kingdom.



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HOUSING PLAN FOR THREE RIVERS

The story of how the city council invested one hundred thousand dollars in a suitable site and entered into an agreement with a realty company whereby thirty houses will be ready for occupation before June 1st, 1919

(From "The Contract Record")

The year of industries for Three Rivers was 1917, and the beginning of 1918 saw floods of workmen rushed towards this city, which was confronted with the big problem of their boarding. Housing accommodations had to be found, but no more were available. Immediately the City Council paid attention to this question and it came to the conclusion that at two viewpoints Three Rivers' policy was to encourage the building of comfortable and convenient houses—(1) To increase the good standing of the town and to add to its embellishment; (2) To make the city more attractive for the workmen.

An interesting suggestion to the council was that the city itself go into the building line and sell or lease the houses with reasonable profits. It was opposed by many constituents, the principal reason bearing upon the point that decent dwellings could not be built at a reasonable cost on account of the high price of the materials, labor, etc. However, the scheme was not dropped. Every day local naval activities were calling for more men. Then the city came to an agreement with the Tidewater Realties Co., Limited, a sister company of the Tidewater Shipbuilding Co., Limited, and a subsidiary of the Canada Steamship Lines, Limited.

A Fine Site Secured

The city was to furnish the site and the company agreed to go into the construction business on its own account. North of the Seminary property, the Houliston Park was lying idle for a long time, as far as building work was concerned. Tramways were passing across and in front of the property. The site was elevated and composed of a sand ridge. No better spot was available within the city and it was bought at a cost of $100,000 by the City Council. It was granted to the company on the condition that they build thirty houses before the 1st of June, 1919, and the balance of lots as per a certain contract between the parties. Each house was to cost at least $3,500. The municipal revenue in taxes, water rates, etc., was estimated as sufficient to provide for the interest, and the sinking fund on the invested capital, which should be reimbursed in a short period on this scheme.

The company then retained the services of Messrs. Barrott & Blackader architects, Montreal, to prepare plans for these industrial houses, and by the end of June a contract was closed with Mr. Anselme Dube, general contractor, Three Rivers, for the construction of five two-storey buildings, 132 ft. by 34 ft., built in terraces of six houses, consisting of seven-room apartments. On the ground floor was a vestibule, a living room, a dining room and a kitchen; on second floor, four bedrooms and a bathroom. The work was started on July 1, and one of the buildings is nearly completed, the brickwork of three others is completed for the first storey and the foundations of the fifth one are finished.

Description of Buildings

The foundations of these buildings are of 1 : 3 : 5 concrete and the walls are 12 in., thick and eight feet high. The mixing was carried on with a ¼-yard London mixer operated by steam, and the concrete was handled in wheelbarrows. It took two days and a half to complete the foundation—the first one—at the rate of 50 cub. yards per day. The unit cost of the concrete was $12.00. In the cellar the flooring is concrete. For every house there is a No. 200 Sunshine hot air furnace furnished by the McClary Manufacturing Company, of Montreal, also a Wee Hawken concrete laundry tub.

The walls of the building are of solid plastic brick and the division walls in common brick. In each building there are 150,000 bricks. The floors are of 1 in. spruce, finished with ⅞-in. B. C. fir. The interior walls are lath and plaster on 3 in. x 3 in. studs. The trim is all in white pine, except the stairs, which are hardwood. Each tenement is supplied with a vestibule and a porch. A crown roofing is placed all around the building, which adds to its appearance. It is made of colored wooden shingles. Barrett Specification roofing is employed.

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Under the exigencies of war we are learning to pay more attention to repairs than we formerly did. The cobbler to-day is reaping a rich harvest from men who never used to think of having their shoes mended. The same is true of many other things, and in particular of machinery. The war has practically monopolized steel production and, in addition to this, there is a severe shortage of skilled labor. For this reason it is not so easy to-day to purchase a new casting when an old one is broken. This has furnished a field for welding apparatus, both of the acetylene and electric type; and manufacturers are coming to appreciate the convenience and efficiency of this method of joining broken steel and iron.



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GROWTH OF DEHYDRATION INDUSTRY

Expansion of the industry offers tremendous opportunities—Its feasibility has been fully demonstrated—With a large commercial or community plant in each locality, a new market will be offered to vegetable growers

By E. CLEMENS HORST
(From the "Scientific American")

Fostered by large Government contracts, there is developing in this country a new industry that will be of material permanent benefit to our economic life. This industry is the dehydration, or drying, of vegetables. By subjecting fresh vegetables to the action of circulating currents of warm, dry air the moisture content is exhausted, with the result that the weight and bulk of the product is greatly reduced and the vegetable is made non-perishable and can be kept indefinitely. The cell structure and the flavor is not injured by the drying process; soaked in water for a few hours, the dehydrated product is restored to its original color, bulk and food qualities, and when cooked it has the flavor and appearance of the fresh article.

A year or two ago the dehydration of vegetables in this country was practically unknown. There were one or two small plants engaged in drying berries and vegetables, but the bulk of their output was used in Alaska or other distant places, where food supplies must be light and durable. At the entrance of this country into the war, and when our soldiers began going abroad in large numbers, the War Department was confronted with the task of supplying enormous quantities of food to maintain the United States Army in France, at a time when the demands upon world shipping were the most pressing in the history of the world. To solve the food problem the various departments of the Government co-operated, and exhaustive tests were made of the different kinds of food available for export. The advisability of using dried vegetables was suggested, and a hearing on the subject was had before a sub-committee of the Senate Committee on Agriculture and Forestry, at which the food experts of the Department of Agriculture and the Food Commission appeared and testified as to the merits of the food. Representatives of commercial companies engaged in dehydrating vegetables were also heard, and the writer appeared before the committee and told of his experiments conducted in California. Samples of dried vegetables were exhibited, and hundreds of pounds of the food were distributed throughout Washington, to be tested for flavor and food values. The restaurants in the Capitol served various vegetables cooked from dehydrated stock supplied from the California plants, and scores of Senators and Congressmen ate the food and were astonished at the similarity to the fresh. At the Reed Hospital, in Washington, 450 men were fed on the dried vegetables, and it was found that five pounds of dried stock supplied ample food for all. The President was even kind enough to try some dried tomatoes, which were made into soup, and many of the officials of the Government tried the samples in their own homes.

Contracts with Government

As a result of these tests the War Department entered into contracts with several companies possessing the facilities for drying vegetables, and these contracts are being enlarged as the industry develops and can take care of new demands. On the Pacific Coast one organization alone now operates ten large commercial driers, employing several thousand people, and large acreages have been contracted in the vicinity of the drying plants for the growing of vegetables. Millions of

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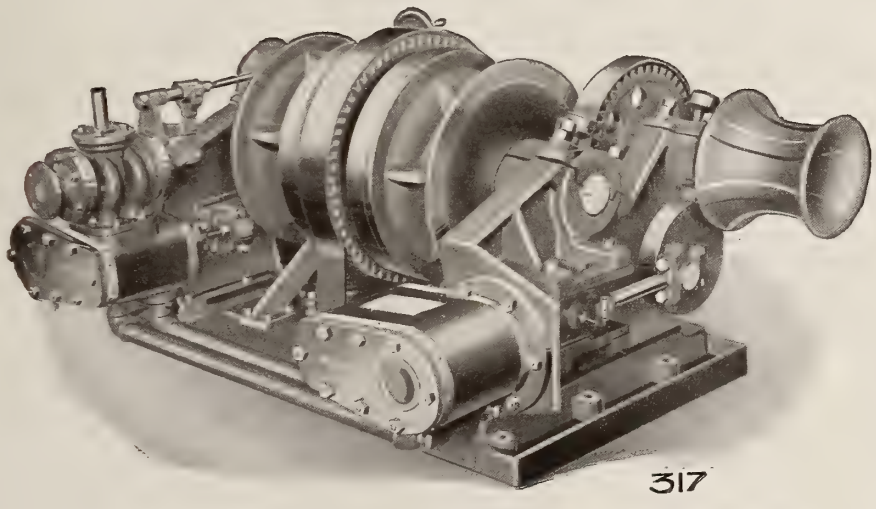
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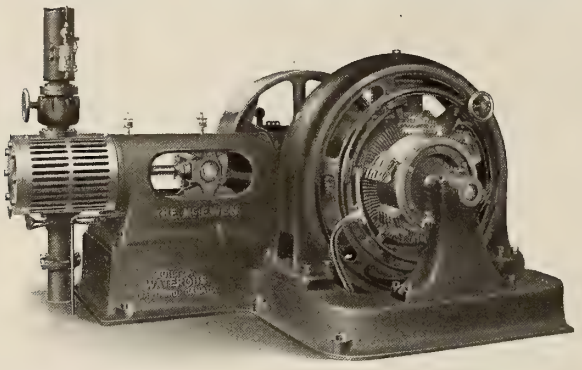
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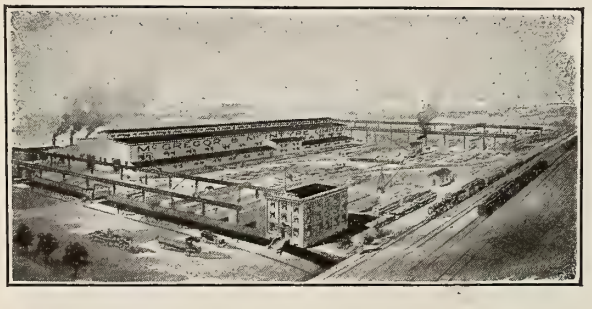
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pounds of dried potatoes, carrots, turnips and other varieties have already been shipped to our armies abroad, and a steady stream of the new form of food speeds across the country and the Atlantic to satisfy the appetites of our boys over there. The American Red Cross has also become a large purchaser of dried vegetables for use in its rescue work in the devastated regions, and in this country many of the large charitable institutions are becoming interested in the product for use in their work. The big shipping companies have found dried vegetables particularly adapted for use on ocean vessels, because of the small space required for storage, and the keeping qualities and superior taste over canned goods. Scores of the finest hotels from New York to San Francisco now serve vegetables made from the dehydrated stock, and they report that the food is superior to that made from anything but absolutely fresh produce. Many economies can be practised by these large institutions in using dried vegetables, because all of the labor of preparing the food is eliminated. There is nothing to discard, and no cleaning or washing of the vegetables is necessary, as all of this is done at the drying plant. Dietitians of hospitals and food experts and chefs all unite in recommending the food.

Large Bulk is Water

When it is considered that from 65 to 85 per cent. of the entire bulk and weight of green or fresh vegetables is water, and that it is the moisture that causes decay and deterioration, it is apparent that, when the dried product is used, a wonderful saving can be effected in transportation, storage and handling. One pound of dried tomatoes or cabbage is equal to twenty pounds of the fresh or canned; one pound of spinach, when dried, is the equivalent of eighteen pounds of the fresh, and so on down to potatoes, which have a ratio of one to six. One carton of dehydrated tomatoes, weighing 2¼ pounds, is equivalent to a case of the canned containing two dozen quart cans, the whole weighing sixty pounds. Therefore, in shipping dried vegetables to our soldiers in France, the Government is able to furnish, in one shipload, as much actual food as could be carried in from fifteen to twenty shiploads of canned goods. If we went a bit further and included the weight and bulk of the tin and wooden containers needed for the canned product, we should find a still greater saving, for in every car of canned vegetables the containers alone weigh about 24,000 pounds. While the dried vegetables furnished the Government are put up in tins, they are large enough to hold about ten pounds each, and two tins thus make up a crate light enough to be handled by one man. The lightness of the dried product also permits vessels to be loaded to full cargo capacity, whereas in the case of heavy canned goods it is often true that the weight capacity of a boat is fully utilized without taking up all of the bulk.

Convenience of the Food

The reason why so many hotels, hospitals and cafes are using dried vegetables is because of the convenience of the new food. A few cartons or tins of each variety of vegetable can be stored in a small space, and when desired for use the only work involved is to place a few handfuls in water to restore the moisture content. Where fresh produce is used, a small army of helpers is required to sort the green stock, discarding wilted parts, tops or roots, and to wash the grit and dirt from the food. Even where the fresh vegetables are kept in refrigerated rooms, the loss through deterioration is excessive, and it is estimated that fully 50 per cent. of green vegetables grown are lost before reaching the consumer.

Vegetables used for drying are grown in the immediate vicinity of the drying plants, and are allowed to reach full

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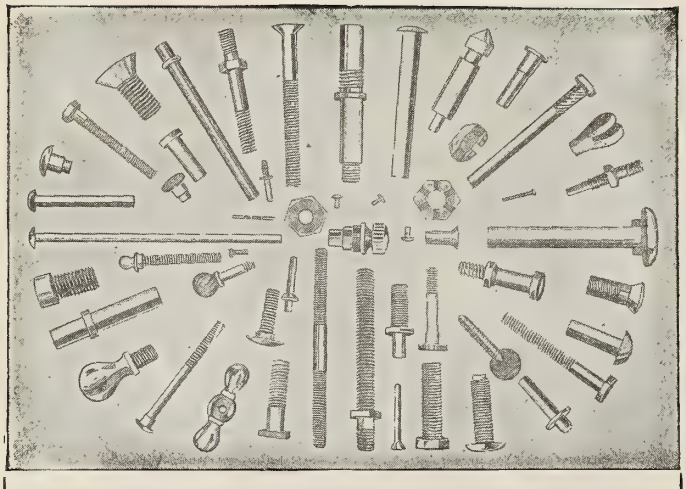
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maturity before picking. Within an hour or so after coming from the field they are sorted and washed, after which they are carried, by endless belts, to various machines which peel, slice or otherwise prepare the vegetables for the drying trays. Wherever possible machines are used instead of hand labor, which insures absolute cleanliness and uniformity. The drying trays are taken to the drying rooms and arranged, one on top of another, with open spaces on all sides so that the warm, dry air circulating throughout the room can come in contact with the food, slowly extracting the moisture without injuring the cell structure or chemical constituents of the product. The air is not allowed to get so hot that the food will be scorched or shriveled, and by a system of distribution the air is kept in constant circulation at a uniform temperature throughout the room. When dried, the trays are taken to the packing room, and the food immediately placed in paper cartons, lined with wax paper, or in large tin cans. Thus protected, the containers can be shipped to all parts of the world and the food will not be injured by excessive heat or cold.

At the drying plants nothing is permitted to go to waste, for all tops, peelings and waste portions from vegetables are fed to stock or hogs, and even the water used for washing the vegetables is saved and the mineral salts found therein are mixed with the greens fed to hogs.

Great Opportunities in Industry

The expansion of the industry offers tremendous opportunities to this country. With a large commercial plant or a community plant in each locality, a new market will be offered to vegetable growers. Thousands of acres of waste lands in the outskirts of cities, towns and villages can be utilized for the growing of vegetables, and the spaces between fruit trees in orchards can be used for the same purpose. Surplus market stocks can be taken to a nearby drying plant and saved, as is done in Europe. Germany has several thousand drying plants scattered throughout the country in which are dried all surplus vegetables grown, and before the war she annually dried twice as many potatoes as were grown for all purposes in this country. Her dehydrated vegetables have doubtless been one of the reasons why she has been able to withstand the food blockade of the Allies. England, Italy and France are also large users of dried vegetables, and in many communities the law requires that all fresh vegetables left over in markets at the end of the day shall be taken to drying plants. The feasibility of the new industry has been fully demonstrated, and the only thing remaining to be done to cause its rapid expansion is to educate the people to use the new form of food.

Develop Its Resources

The Greater Winnipeg Water District is planning to develop its own resources and an immediate survey of these will be made. Heretofore, it has been the practice to approve of permits to private parties to cut timber in the District. It is expected that large quantities of cedar posts and poles, pulpwood and other timber will be cut and marketed under the new plan. The resulting traffic will also help to pay the running expenses of the construction railway which cost over $1,000,000 to build and which it is now hoped to make permanent.

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A DEPRECIATION WAGE RESERVE

To offset declining earning power as a workman grows older there should be set up a depreciation wage reserve, which is added to the weekly wage—An ideal way to handle a problem which is bound to become pressing

By JAMES COUZENS

(From the "Michigan Manufacturer")

A friend of mine, who employs quite a number of men, told me the other day that he had the best opportunity in his life to observe the fact that men 50 years old or more, who have taken the places of younger employees who have gone to war, cannot by any means do their work as efficiently and rapidly as the men they have replaced. He says they are not as alert, not as dexterous and that their earning power has been reduced.

In telling me this, my friend, without knowing it, got at the root of a problem which forward-looking employers should comprehend and remedy at once, because, in my opinion, it will press for nation-wide, if not world-wide, solution immediately after the war—if indeed the war does not bring about the adoption of a practical problem to handle the matter.

The problem to which I am referring is the depreciation which comes in a man's earning capacity as he ages—a depreciation which is just as real as the depreciation of machinery, buildings and equipment. Every well-run business sets aside a reserve for depreciation as a part of the expenses of carrying on the business before calculating profits. Now in the new era of social justice that is here and will follow the war a like depreciation fund must be set aside for the wear an tear on the human machine—a depreciation fund which will constitute a reserve to provide for the employee no longer able to hold his own with the younger men in industry.

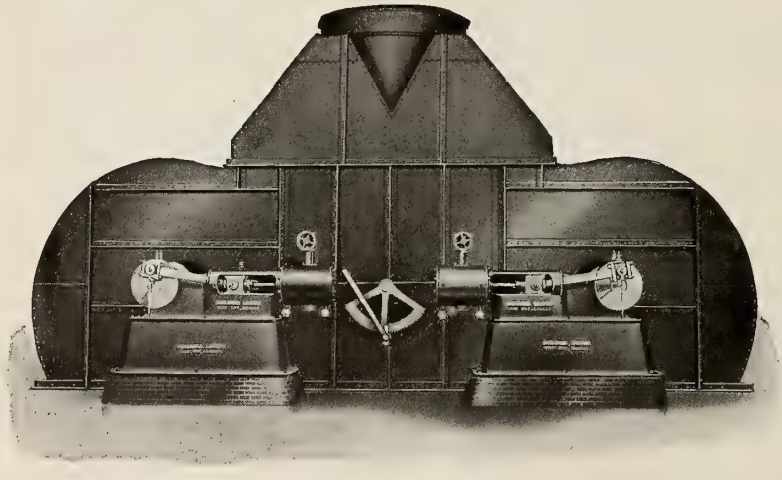
This condition has not, I am afraid, been observed by the majority of employers, but it is one which they are no doubt recognizing now or will have to recognize soon. They are going to come to it in one form or another; if not voluntarily, graciously and humanely, then by legislation.

Some Have Attacked the Problem

Some large industrial concerns have already attempted and some have succeeded in meeting it in one way or the other. Some have done it by paying above the old scale of wages and urging their workmen to save, to apply it on homes, and in many ways to provide a competence for their depreciated earning capacity. Some have done it by giving their employees stock in the enterprise, and some of them by selling them stock at prices below the market; some by profit-sharing plans, so that their employees may be getting a margin above their living expenses. This was what Samuel Untermeyer in a recent address in Chicago termed an extra wage provision for "man power depreciation reserve."

It seems to me unfortunate that many arbitration boards have laid down a fundamental principle in settling labor disputes that the employees must have a "living wage." I dislike the term "living wage" as it is commonly used. I dislike it because, as a matter of fact, a "living wage" is such a variable proposition that it would be impossible to set any wage up as a standard to try to go by. A living wage is variable for at least two reasons. In the first place, men's

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go normally and naturally together in the equipment of factory wash-rooms and toilet rooms. If the labor "turnover" is giving you any anxiety, this is worth investigating. Workers stay where they are well treated, and they do notice these apparently "little" things, whether they say anything about them or not

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standards of living differ. A man who has adjusted his family expenditures on the basis of $2 a day can save money when his wages are raised to $4 a day, whereas the man receiving $3 a day and barely getting along on it finds it impossible to save when his wages are raised to $4 a day. It is obvious he cannot save as much as the one who was getting the smaller amount. Then again, living costs are constantly changing. I was very much interested in reading, a short time ago, a paper written by a college professor who advocated the fixing of a standard value of the dollar and adjusting that standard at stated intervals to meet changing conditions in commodity costs. His idea, to state it simply, was to put into a basket various food commodities to the value of a dollar to-day. For example—some bread, some butter, some meat, some vegetables, etc., etc., which could be purchased on that particular day for a dollar, and then say "Here is the standard value of a dollar," and when there is any material fluctuation, say every six months, the contents of the basket would be increased or decreased according to the purchasability of a dollar, and say "Here is your new standard worth of a dollar." This would be getting the value of a dollar as accurately as possible, although it would not be exact, since costs vary in different parts of the country.

How to Determine Standard

This computation having being carried out as to clothes and other necessary items, we must take one step further before establishing a "living wage." We must decide what the average man shall eat, what he shall wear, what rent he shall pay, how much he shall spend for recreation; and on these two bases we must pay large enough wages to enable a man to meet his necessary expenditures.

But we must do more than that. To the "living wage" we must add a margin as the "depreciation reserve" which will provide for the comforts of the worker when he gets so far past the prime of life that he cannot hold his place in industry. Necessarily, there would be some details to work out. Two ways to administer the payment of this depreciation reserve occur to me offhand. The first way—and the ideal way, in my opinion—is for the employer to add the margin to the worker's daily wages, at the same time using kindly, helpful means to educate the worker to put the money in a safe place. That is what some large industrial concerns are doing.

Give Margin to State

The second way is for the employer to turn the margin over to the State, so as to guarantee that the worker will not squander the money or will not be gouged out of it by fake investments and other means of sharp practice. The Government, in turn, would in time give back to each man his wage reserve under a plan properly formulated.

Let's not call this a "pension" system. It's not that. The word "pension" implies that the money is paid as a gratuity, when it actually is the payment of money which the worker has earned but has laid aside. Let's call it a wage reserve, for that is just what it is.

I said a moment ago that for the employer to add the margin to the weekly wage was the ideal way. It is ideal, first, because it teaches the employe to provide not only for his current needs but for his future needs as well. It teaches him to be a financier—and we have all got to be financiers, from the humblest laborer to the millionaire. Indeed it is more necessary for a poor man than a rich man to be a financier, because the rich man has a slack which he can take up when need arises, while the poor man has not.

Again, it is the ideal way because it puts the responsibility up to the employer, where it rightfully belongs. It

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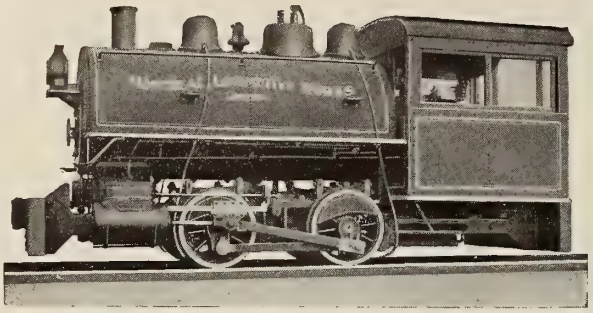
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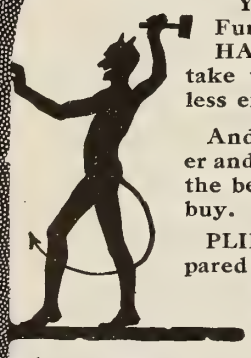
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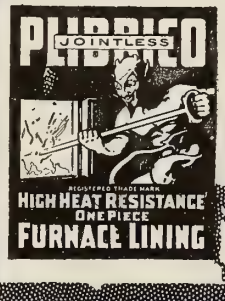
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is up to the employer to get close to his men—to make them feel that they are working with him, and not for him. It is his business to sympathize with them, to bear with them when hard luck overtakes them—and there is such a thing as hard luck. I have no sympathy for the statement that there is no such thing as luck. What is it but luck when a man rears a family of five or six children, has no deaths and little sickness in his household; when he suffers no money reverses, and always has a job? What about the man who loses a child or two, who has an invalid wife as a result of childbirth, or falls ill himself with tuberculosis or other unavoidable illness? You see there is such a thing as luck, and it has to be reckoned with. The employer should feel that this is his responsibility. To stand with his men in fair weather and foul. He has the wherewithal, and he ought to have the inclination.

By paying a depreciation wage reserve the employer likewise would do away with institutional charity, which, although necessary under the present scheme of things, is to be abhorred. Institutional charity humiliates the recipient; the payment of a wage reserve dignifies the worker, for by it he receives the fruit of his own toil.

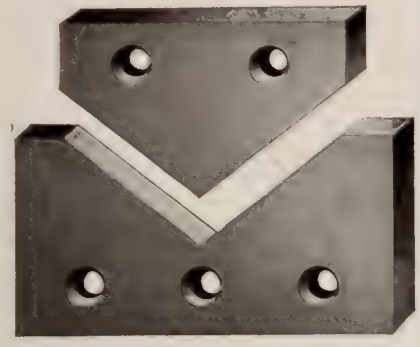
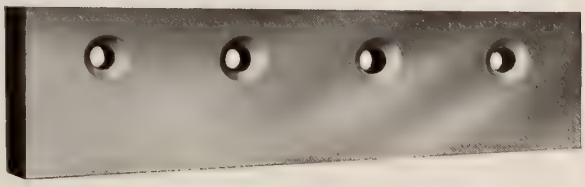
Is This the Practical Way?

I say this is the ideal way. I am not sure, however, that it is the practical way, for the reason that, just as there are some employees who could not be trusted to take care of the extra money, there are some employers who could not be induced to inaugurate the wage reserve plan, or take a humane interest in their workers. I hope that the percentage of the latter is very small. In fact, I feel that it is so small that I shall be disappointed if after the war the wage reserve system is not adopted by practically 100 per cent. of our employers.

It may be found, however, that many employers are not willing to provide thus for their workers, and in this event it will be incumbent on the state to take action. I don't like to think that this will be necessary. I hope it will not be necessary. As I just said, I will be surprised if the system is not adopted after the war by practically all our employers.

There is a corollary of this proposition which I wish to touch upon, and it is this: It has been suggested that after the war is over the Government guard against unemployment by the construction of public works in times of industrial depression. This may work out in some respects, but it is at best a makeshift, and it may be found impossible many time to have the work where the workers are, and this means the breaking up of family ties, which is always undesirable. Therefore, this plan does not, in my judgment, cover the ground. The proper way to guard the worker's welfare during lax times is for the employer either to make provision that part of the depreciation wage be paid during periods of unemployment, or to pay his employees part time wages during such periods. Funds for the latter purpose should be set aside just as money is set aside for fire insurance, for preservation of machinery, or for the payment of watchmen's services. Such a fund should be made a part of fixed charges.

It has likewise been proposed that the Government take care of the returned soldier by putting him on a small piece of land and providing him with farming equipment. It has also been suggested that community farming might be recognized, and this certainly has some merit. The vitally weak point in either of these suggestions is the leaving out of what seems to me to be the consideration of the personal equation. All returned soldiers will not like farming. All returned soldiers will not like the isolation of the farm because the crowd instinct is too strong in them, and in fact


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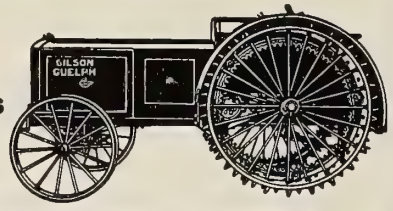
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it should not be ignored. After I have spent a few days on my farm I can hardly wait to get back to the city where I can "rub elbows" with people. There are thousands of people just like myself; if you put them on a farm, especially if they haven't a family of children, they can't stand the quiet, or the lack of human association.

Opponents of this plan may have something better to suggest, and they undoubtedly will argue "What about the weak, the incompetent and the inefficient?" Well, what of these? Are they here to be abused, exploited, gouged? Or are they here to teach the strong their responsibilities? To my mind there is only one answer to that question, and that is that the weak are here to teach the strong how to keep their blood circulating—how to keep up there "heart action." And I am convinced that the war is working a social revolution which will establish a new order under which men of means will feel that they have a greater responsibility toward their workmen than ever before—one which they will find it neither honorable nor desirable to evade.

The Friendly Australians

(From the "Scientific American")

In a long talk on American trade with various countries, made at a largely attended meeting of business men interested in export matters, the speaker failed to refer to Australia. This omission grated upon a young man in the audience, a well-set-up fellow recently returned from active service in Europe, and he seized the first opportunity to remind those present that Australia is very much on the map.

"I have been asked a dozen times since I have been in the United States what language we speak in Australia," he snapped. "Why don't you people here take the trouble to find out something about us? We speak English; we are not foreigners; we are your comrades in arms, your brothers, and we want to do more business with you. Australia is not going to buy any German goods for at least five years after the war, and even longer, I hope."

It was suggested that the pictures of Australian aborigines found in the geographies of past decades had given to many Americans the impression that the Commonwealth is a wild country peopled mostly by savages.

"Then you ought to burn those geographies and wake up to the fact that the area of Australia is as great as that of the United States, and all we need is a larger population. We have done pretty well so far, producing more wool than any other country in the world, and forging right ahead in agricultural, mining and manufacturing. Australia wants to buy American goods of all kinds. Our country is very much like yours, and we wish that you would take more interest in us."

He added that a firm in Sydney received a letter from an American concern addressed like this: "Browne and Whyte, Ltd., Sydney, Australia, corner of the Pacific and the Indian Oceans," and commented dryly that the reply might just as well have been directed to the "United States, Western Hemisphere."

Despite the shortage of ocean tonnage there has been a steady gain in exports from the United States to Australia during the past five years. A great many Australian buyers have come here. Some of the American products that have been found particularly well adapted to conditions in the Commonwealth are axes and crosscut saws, stump pullers, farm implements, automobiles, and many manufactured goods. For its population Australia is the best market in the world for the wares of American merchants, its five million people buying about twice as much from us as the four-hundred-odd million of China.

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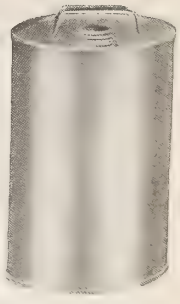
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BRITISH COLUMBIA'S FOREST WEALTH

Using the timber still standing as a basis, it is estimated that the province has lost through forest fires at least six hundred and sixty-five billion feet board measure—A serious loss, attributed very largely to public carelessness

By R. D. C.
(From "Conservation")

The exhaustive investigation of the forest resources of British Columbia by the Commission of Conservation, extending over a period of three years, discloses the fact that of the total land area of the Province, 355,855 square miles, approximately 200,000 square miles is incapable of producing forests of commercial value. About 145,000 square miles lie above the mercantile timber line, and on 55,000 square miles, though below timber line, the soil is either too rocky or wet, or the forests have been so completely destroyed by fire that there is no hope for the natural re-establishment of forest conditions for centuries to come.

Of the remaining 155,855 square miles which is capable of producing forests, only about 28,000 square miles—less than one fifth—carries sufficient timber to be classified as statutory timberland. (The Land Act defines "timberland" as that which, when situated west of the Coast mountains, carries at least 8,000 b.f. per acre; when east of the Coast mountains, 5,000 b.f. per acre). In the interior of the Province, there are areas of forest land, aggregating 23,800 square miles, which, though not reaching this standard, carry between 1,000 b.f. and 5,000 b.f., part of which may be utilized. Only very meagre data have been obtained as yet as to the area of land which can be used for agricultural purposes. It appears from our forest land classification that somewhat over 5,000 square miles is grass land or very open forests, some of which is suitable for cultivation, but the greater proportion is of value only for grazing. In addition there is, perhaps, from 12,000 to 15,000 square miles cleared or under forest which is or may be more valuable for agriculture than for forest production. Deducting this potential agricultural land, say 20,000 square miles, from the land capable of producing commercial timber, there is 135,855 square miles of absolute forest land which should be devoted permanently to forest production.

The timber on about 100,000 square miles, or two-thirds of the land once forested, has been totally destroyed by fire, and on over half of the remaining 55,855 square miles has been seriously damaged. Using the timber still standing as a basis, it is estimated that the Province has lost, through forest fires, at least 665 billion feet board measure. When one considers that the total stand of saw material in the whole Dominion probably does not greatly exceed this amount now, the seriousness of this loss, which can be attributed very largely to public carelessness, becomes apparent.

The total stand of saw timber and pulpwood material in British Columbia, as ascertained by the survey of the Commission of Conservation, is 366 billion board feet.

The estimate of the forest resources of the Province submitted in the report of the Commission of Conservation is based on a much higher percentage of detailed timber cruises than any forest report of a similar nature heretofore issued. It is believed, therefore, that the information will be valuable, not only to the governments which control the forest policy in the Province, but also to timber owners and financial interests, on whom the development of the industry so largely depends.



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MANUFACTURING IN SOUTH AFRICA

The following are the industries which are considered to have flourished most on account of war conditions: Flour milling, biscuit making, confectionery, jams, leather shoe manufacturing, brushware, readymade clothing, blanket and furniture manufacturing

By SIDNEY E. KNIGHT
(From the "World's Markets")

The commercial situation throughout South Africa has undergone no special change during the past half year. The wave of activity in industrial directions which commenced shortly after the outbreak of the war continues unabated. Existing factories are producing to the utmost limit and new manufactories are being started, while others will come into existence as soon as it is possible to obtain the necesary equipment from overseas. It may be stated that, while most of the new enterprises started on a modest scale, as a rule, they have done exceedingly well and laid the foundation of permanency. For practically all kinds of foodstuff the country is now dependent on its own manufacturers and to such the last four years have been very prosperous, and manufacturers in all other lines are doing a steadily expanding business and enjoying the benefit of practically the absence of competition of oversea goods.

In pre-war days nearly all ready-made clothing was imported, while to-day the trade is very largely supplied by local clothing factories which have become established in the last three years, these factories centering in Cape Town. There has also been a considerable expansion in furniture manufacturing. The leather and allied trades are also doing splendidly. There are some nineteen tanneries in the Union producing leather amounting in value to roughly £750,000 annually. Almost all of it is taken by the boot and shoe factories. The chief center for boot manufacturing is Port Elizabeth, where a number of such factories have come into existence during the past few years.

Building Confined to Dwellings

Timber, building and allied trades are well employed, although the building is almost entirely confined to dwellings and other small erections for which the demand exceeds the supply, but business at the docks has been less active during recent months on account of the greater restrictions on shipping, the arrivals at this port having been few and far between during the last half year. In fact, at no time since the outbreak of the war has the port been so quiet. Consequently, there is no general improvement in stocks of imported goods held by merchants, and some wholesalers even are limiting sales to their customers with the object of conserving goods as much as possible. Despite these conditions, however, both wholesalers and large retailers have very fair supplies on hand and report satisfactory business, both in town and country districts.

The farming outlook, on the whole, is satisfactory, with the exception of the fruit-growing trade, the position concerning which is uncertain owing to the stoppage of export trade. Latest estimates from the Agricultural Department concerning maize, one of the leading staples, is that the crops will reach 9,800,000 bags, and the estimated surplus available for export is put down at 1,500,000, and it is estimated that from Rhodesia there will be a surplus of 300,000 bags of maize available for export this year. It is furthermore reported that there has been a satisfactory increase in live stock and the export meat

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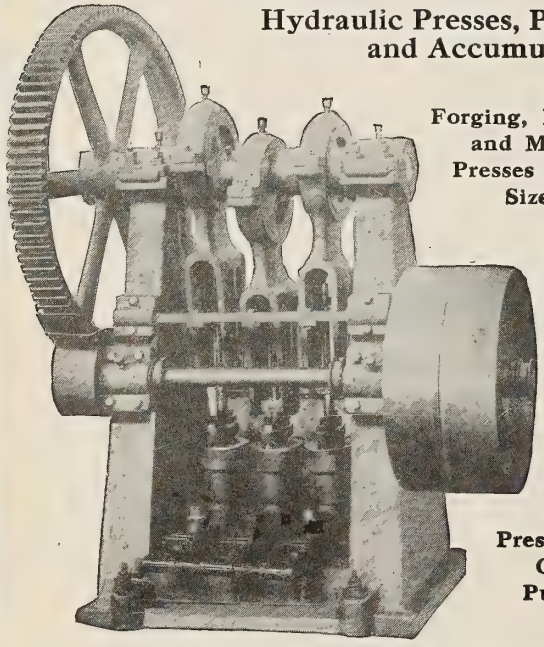
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trade is growing. Meat exported in 1917 amounted to 22,400 tons, as compared with 7,982 tons in 1916 and 2,324 tons in 1915.

Progress is steadily noted in the dairying industry and the 1917 figures of production show the following as compared with the previous year:

	1917.	1916.
Cheese, lbs.	4,266,048	1,975,487
Butter, lbs.	19,411,571	16,013,557

These figures are significant when it is remembered that only a few years ago South Africa was a heavy importer of butter and cheese, whereas to-day no butter is coming into the country and the quantity of cheese imported is insignificant. Considerable development has taken place in bacon production also, and it is anticipated that in the near future South Africa will be exporting considerable quantities of all kinds of dairy products.

Labor in all directions is well employed, money is freely circulated and failures are few and of no great importance. Indeed the condition of labor never before was so good as it is now and a distinct improvement in quality and standard is noticeable as a result of constant employment and the more pressing demands that are being made on workers of all classes.

To recapitulate, the following are the industries which are considered to have flourished most on account of war conditions: Flour milling, biscuit making, confectionery, jams, tanneries, shoe manufacturing, brushware, ready-made clothing, blanket manufacturing, all kinds of dairy products, meat production and furniture manufacturing. It would be useless to enumerate the lines in which stocks are short, for the trade position to-day is that stocks in practically every line of goods are depleted and many more ships must be built before any improvement of consequence can be expected in this direction.

The market is ready to absorb anything and everything that can be imported as soon as it arrives, even if the price should be high.

Trade of South Africa

An official government publication announces that the total value of imports into the Union of South Africa during the five months ended May, 1918, amounted to £18,239,638, as compared with £13,914,404 during the same period of 1917. Exports of South African produce (exclusive of gold and certain ores and minerals) amounted to £12,430,536, as against £10,187,284 in the first five months of 1917. The following were the values of the principal exports (the figures for the corresponding period of 1917 are given in brackets):

Wool, £4,240,678 (£3,091,651); diamonds, £3,181,252 (£3,134,-103); food, etc., £2,175,951 (£1,514,128); hides and skins, £951,241 (£806,878); coal, £439,467 (£92,368); mohair, £207,466 (£141,038); wattle bark, £105,463 (£83,114).

As indicating the growth of the trade in wattle bark extract, it may be mentioned that the value of the exports of this commodity in the same period was £42,909, as against £17,610 in the first five months of 1917.

The banking position, as it discloses the condition of the country's trade, is set forth by *The Cape Times* as follows:

The quarterly statements of the assets and liabilities of the various banking institutions within the Union bear evidence once again to the general prosperity of the country, and at the same time to the restricted opportunities for the investment of capital. A month before the outbreak of the war the total deposits at the various banks within the Union amounted to £33,305,000, while the advances made by the banks to their customers amounted to £31,170,000. In other words, about 93 per cent. of the deposits, fixed and floating, had been remuneratively employed. On March 31 last, the date upon which the

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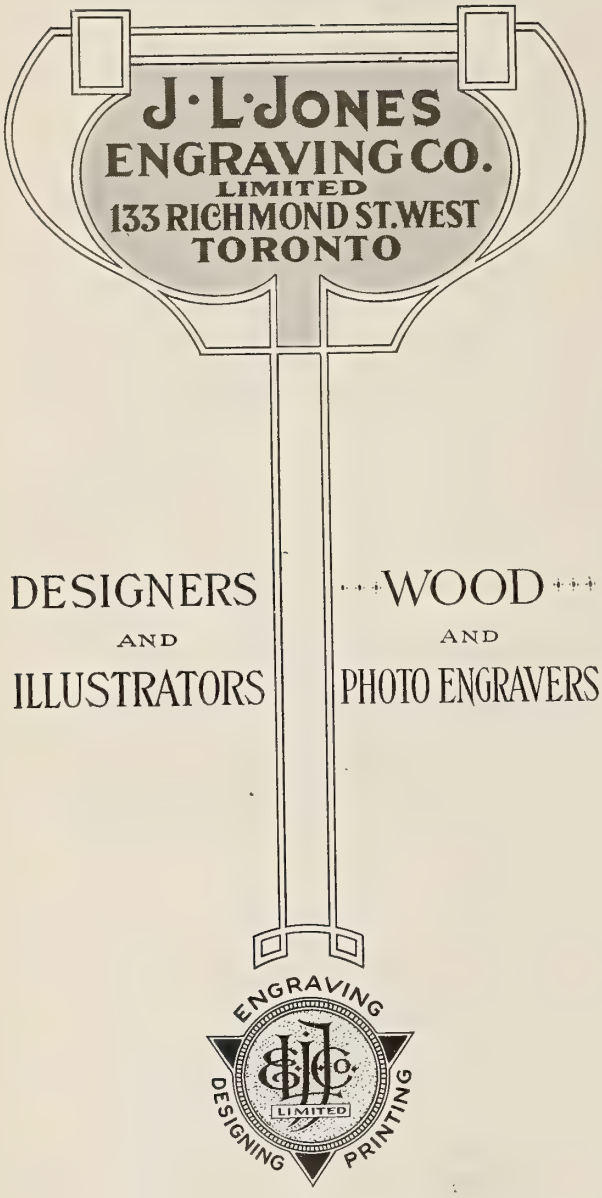
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returns were made up, the total deposits amounted to £57,146,000 and the total advances were £37,966,000, or 64 per cent. The contrast is remarkable. Possibly the ratio of advances to deposits in 1914 was a trifle high, but credit was sound, and there were ample opportunities for investment. To-day credit is sound enough throughout the Union, but there are no opportunities for investment, or at least it is clear that, pending the settlement of the war issues, there is no disposition to invest largely in new ventures. The position will be better understood if it is stated in inverse form. If to-day advances bore the same ratio to deposits as they bore in June, 1914, they would total something like £53,148,000 instead of £37,966,000 only. Hence it is a legitimate deduction that there is available in South Africa to-day capital to the amount of over fifteen millions sterling, which in normal times would be fully employed, but which is in fact lying idle. This accumulaton of capital is proceeding apace. At the end of September of last year the total deposits amounted to £49,336,000. They have increased to nearly eight millions sterling in the past six months, and since the outbreak of the war they have grown by over twenty-two millions, and this in spite of the fact that local loans have been floated in the Union during that period to the amount of sixteen millions.

THE UTILIZATION OF WOOD WASTE

Engineer of U.S. Forests Products Laboratory discusses the wonderful results that are being obtained by investigation and experimentation, results that may earn at least two billion dollars through the saving in by-products

By ROBERT H. MORELTON
(From the "Springfield Republican")

Frank J. Hallauer, engineer of a little known branch of the Government, the forest products laboratory, situated at Madison, Wis., believes that he and his associates can teach this country how to save two billion dollars annually in the wood industry.

He is confident that it can be done; that is, the annual cut of wood, now vallued at two billions, can be made into articles of use which at present prices would bring double that amount.

It is a tremendous job, but Mr. Hallauer points proudly to unbelievably vast economies already effected in the wood trades through the work of the forest products laboratory's chemists. They are in such terms that it would be hard to tabulate the exact savings, but there is little doubt that they run over $100,000,000 a year.

Few persons outside the wood trades know of the work of the laboratory, the first of its kind ever to be established, but which has been imitated in a number of countries since it began operation. Its annual appropriation is small for the work it does; something less than $200,000.

The laboratory is now looked upon to save the paper situation of the country, and it cheerfully tackles the job. Only recently announcement was made in Washington that the laboratory had discovered that good grades of paper can be made from a number of Far Western woods and that Wisconsin paper mills were already ordering trainloads of wood chips from the West for paper pulp. The cost of freight to Wisconsin is more than offset by the cheapness of the chips, and the paper thus made is expected to prove a considerable factor in relieving the paper famine.

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A visitor who leaves Mr Hallauer can scarcely believe that there is anything which cannot be made from wood.

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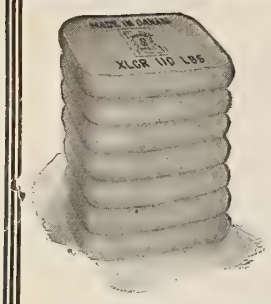
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"Almost surely not true," he said. "The human stomach cannot stand it. It is possible to convert sawdust into cattle food, and that was probably the foundation for the story."

But Germany from her forests is obtaining such great results that if, as an English writer recently suggested impractically, England were to destroy Germany's forests, the war would surely end very soon. Artificial cotton is one of the things which are being supplied from wood. Paper shirts are also being used, but then Japan is supplying these to the Russian soldiers.

Germany has been driven to extreme use of her forests by necessity, but no country with the exception of Germany has made such a systematic effort at developing forest products as the Uuited States.

Charcoal for the manufacture of black gunpowders is being obtained from dog-wood, willow and alder. Great quantities of alcohol and ether are made from imported molasses, but if we were cut off from this raw material we could depend upon the forests. Alcohol could also be made from grain, but in war times grain would be required for food. It is estimated that during the present year 40,000,000 gallons of denatured alcohol will be used at home, while huge quantities are being exported.

Gunstocks and Wooden Legs

The use of wood for gunstocks is generally familiar. Our supply of seasoned black walnut, the most suitable wood for the purpose, has been entirely exhausted by the heavy demands of Europe. Heretofore, the practice has been to let gunstock material air season for months before it would be worked up. Time became so important that artificial seasoning was resorted to, but improper methods destroyed too much of the material.

The forest products laboratory has now perfected dry kilns, which overcome the trouble, and as a further aid in perfecting methods of using other woods, notably birch, for gunstocks. Then there is the near relative of the gunstock, the wooden leg, making heavy demands for willow. Millions of feet of lumber and heavy timbers are required in war times for structural purposes, such as the erection of docks, bridges, trenches and temporary shelters.

Disinfectants are now a necessity. They can be made from wood. Pure wood alcohol is the only substance that can be converted into formaldehyde, universally used for disinfection against such contagious diseases as smallpox, scarlet fever, diphtheria and tuberculosis. It is also used to prevent crop diseases by disinfecting the seeds.

But the importance of forest products for war supplies in no way compared with their importance for industries. The largest of these are the lumber, pulp and paper, naval stores and distillation industries. They employ more than 1,000,000 wage earners. Their products are valued at $2,000,000,000 annually.

Chemicals Derived from Wood

The most promising and novel development in the line of by-products from wood is in the nature of chemical utilization. It might be said that the chemists of the forest products laboratory have put the "prod" to forest products. The lumber industry draws upon the forests for many times as much material as do all the other industries, and only about one-third of the tree cut for lumber is actually put on the market in that shape.

Right here is more than enough waste, although not often in the right form or readily available, to supply raw materials for all the other industries. The problem now becomes one of adopting means of utilization to suit the conditions. Years ago wood ashes were leached for home soap making, to furnish potash. The practice disappeared. It is now being revived as

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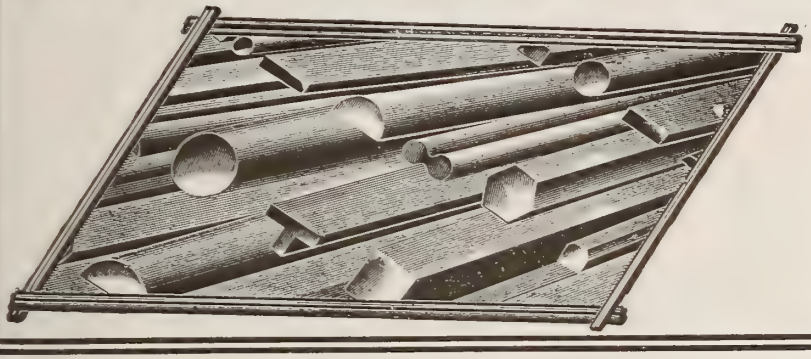
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a source of potash to offset the shortage of fertilizer due to the war.

In the Red River Valley of Texas the Indians used to use Osage orange for dyeing, but that wood never gained commercial recognition as a dye wood. Within the last year, however, we have succeeded in getting it into the market as a substitute for fustic, while we import from Jamaica and Tehuantepec, and more than $1,000,000 worth of these dyes is now being made by American manufacturers.

The forest products laboratory has just completed an analysis of the oils which can be obtained from the needles or leaves of all the coniferous trees of the country. From a number of species the oils obtained have very attractive odors; other oils can be used in greases and shoe blackings. In Europe the finer needle oils are used as perfumes in soaps; others are used for inhalations for lung diseases.

The laboratory has been working on the production of alcohol from wood for five years. It has succeeded in lowering the cost of production and raising the yield to such a point that the introduction of this alcohol as a motor fuel seems likely, particularly with gasoline going up as it has been. As Mark Twain said: "What chance has prohibition when a man can take a rip-saw and get drunk on a fence rail or drink the legs off the kithen table?"

Baking Powder from Wood

Western larch has an unusually high percentage of galactan which it is believed can be converted into a fermentable sugar for use in making grain alcohol. This same galactan in oxidation yields large quantities of muric acid and muric acid can take the place of tartaric acid in the manufacture of baking powder. A number of lumbermen recently visited the laboratory and one of the chemists made baking powder from wood, and his wife made biscuits with it. Another advance is the preparation of a fine sweet syrup from galaxtose, a sugar derived from galactan. So if the people of Montana, the home of the Western larch, get hard pressed they can make their flap-jacks with larch baking powder, bake them over a stove heated with larch alcohol and sweeten them with larch syrup.

Converting cellulose obtained from wood into a gelatinous material known as viscose opens up another field for research and adds a new line of products running all the way from sausage casings to tapestry. Five million dollars' worth of silk socks sold last year got their silk from wood, as did many silk neckties and fancy braids. Probably it won't be long before the whims of the silk worm will have little control over silk market conditions.

Kraft paper is made from sulphate pulp, and the method of making it came to this country from Sweden ten years ago. Kraft is much stronger than other papers. It is brown, similar to that which we usually think of as wrapping paper. Large quantities of it are used for that purpose, and it is particularly suitable for large envelopes. Kraft is used for book covers, for imitation leather and for card board suit cases. An attempt is being made to produce a paper twine that will replace the binder twines now made from imported fibres. This question has become more active because of the recent shortage of these other fibers on accaunt of the conditions south of us. A successful paper substitute would provide for the utilization of wood waste and at the same time build up a home industry independent of foreign raw materials.

Some other accomplishments of the laboratory are these: A preventive for sap stain on lumber. The loss due to stain has been estimated at $7,000,000 a year; much of this is now being prevented.

The prevention of the bleeding and swelling of treated wood block paving.



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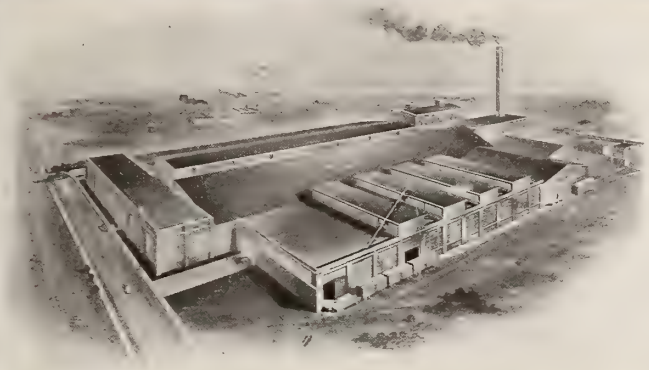
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The discovery of how to increase the yield from the destructive distillation of hardwoods. One plant reported an increase of $15,000 a year in the value of its products from applying the results of this experimental work.

The demonstration that turpentine and rosin can be obtained in commercial quantities from the Western pines.

The problems put up to the laboratory to solve are many and complex. One man in the frog business was suffering heavy losses from the death of his tadpoles. He asked the laboratory to find out if there was anything in the wood which when washed out poisoned the tadpoles.

The Government chemists undertook to study the matter. They could not locate the trouble, so it was put up to the section of timber tests. After a few experiments it was found that the resonant croaking of the large frogs produced vibrations in the boards of the tanks. These vibrations were transmitted through the water to the ganglia of the tadpoles (they have no brains), causing a disease somewhat akin to infantile paralysis.

The remedy was simple. The man was advised to separate his tadpoles from his large frogs, thus confining the vibrations to the older generations. This was done and the mortality among the tadpoles decreased wonderfully.

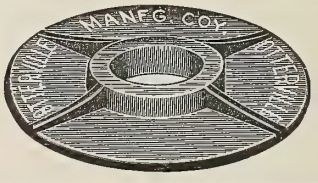


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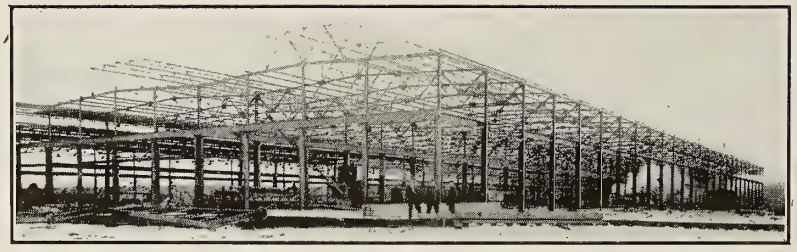


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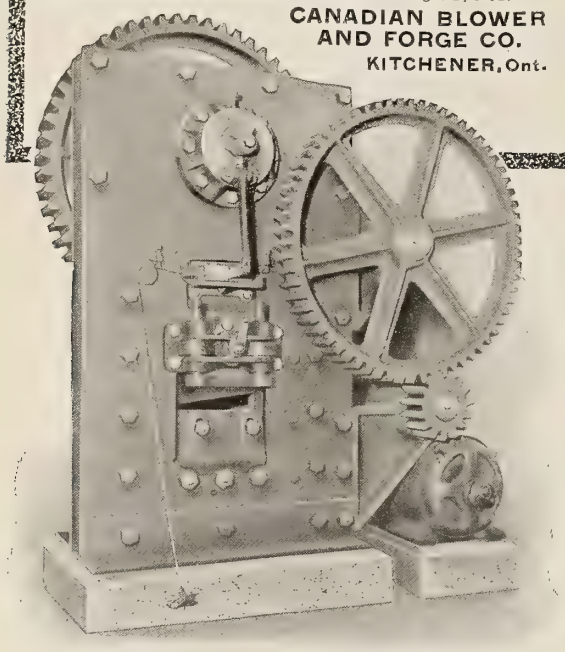
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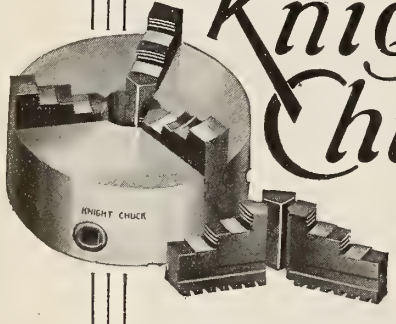
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THE PASSING OF BAD CHEQUES

In most of the States of the Union it is no crime to give a cheque on your account if you do not have the money in the bank to meet full amount, but practice should be stopped

By RALPH H. BUTZ
(From "American Industries")

A large number of business men throughout the country have been put to such an enormous amount of trouble on account of receiving bad cheques from negligent and dishonest customers that they are beginning to make a determined effort to put on end to this nuisance. Many of the leading credit associations in the various States have already begun an active campaign among all business men to support the demand for the enactment of legislation that will rid business of the bad cheque evil.

The plan is to have all the States enact laws that will make it a misdemeanor for any person to give a cheque in payment for anything, or to have one cashed, when there are not sufficient funds in the bank to meet payment.

In one State a bill of this nature was successfully passed through both branches of the legislature, but when it came to the governor for his signature he vetoed it on the advice of the State's attorney-general, who maintained that if the bill became a law all of the jails in the state would be filled with this particular class of offenders. In replying to this argument the business men stated that the jail was the proper place for such persons and that a measure of this nature was absolutely necessary to impress upon people the fact that bad cheque passing had to cease.

Only Two States Passed Laws

Up to the present time there are only two States that have passed laws making it a misdemeanor to pass bad cheques. These states are West Virginia and Wisconsin. The credit associations have made a careful investigation in these two States, revealing the fact that few cheques are offered to business men which later come back from the banks marked "N.S.F." Most persons in these States know that it is a misdemeanor to pass a bad cheque, and as a result of this knowledge they keep their accounts in proper order and see that there are sufficient funds in bank to meet all the cheques that are issued. In West Virginia especially it has been found that business men have less trouble than in any other State, which merely goes to prove that the bad cheque habit is easily overcome by the most persistent offenders in this respect, if the law gives them the proper incentive to overcome it. These laws have stood the test of the courts in both States.

At a recent association meeting this subject was up for discussion, and one business man, who receives a large number of cheques, stated that every day his banks returned to him cheques that are marked "N.S.F.," which causes him no end of annoyance.

Under the present laws in most States it is no crime to give a cheque on your account if you do not have the money in bank to meet the full amount of the cheque, which is the reason why many people take advantage of the situation. Quite frequently a man gives a cheque for a larger amount than he has in the bank, thinking that he may be able to make a deposit to his account before the cheque is presented at the bank for payment.

There is no doubt that if the business men give their united support to such measures as are proposed, they will become the law in every State within a short time, for

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there is no logical reason why the passing of bad cheques should not be discontinued. Hotel managers have for many years been advocating a law of this nature, for they have been among the principal losers. But the riddance of this evil will not benefit only one class of business men. It will be for the good of all, and the sooner the proper support is given the better it will be for business in general.

CANADA'S MERCANTILE MARINE

So long as four-fifths of her products are freighted overseas in foreign-owned tonnage, Canada is giving to outsiders an essential part of the profit on her people's industry

(From "Shipbuilding and Harbor Construction")

The development of navigation in and out of Canadian ports means much more than the mere tempting of ships to load and unload here. The war has shown the vital importance of a nationally-owned merchant marine and Canada is becoming more and more alive to the necessity of this.

According to the last report of the Department of Trade and Commerce, shipping to and from Canadian ports is fostered to the extent of several millions of dollars per annum. There is a large decrease in the amount for 1918-19 as compared with 1917-18, the figures for the two periods being respectively $1,906,900 and $2,957,000. There is, however, nothing to show that any discrimination is exercised in favor of Canadian-owned shipping as distinct from that of other countries which merely use Canadian ports and have no other interest in the country. On the other hand it is probable that a Canadian shipping company receives more favorable consideration of this kind, although there is nothing in the report to show this.

Canadian-Owned Shipping

There is no apology needed for returning to the point of subsidies to Canadian-owned shipping as distinct from subsidies to shipping merely using Canadian ports. The distinction between these two lines of activity is of extreme importance to the prosperity of Canada, and the encouragement of the home industry is also important as tending to place the national trade and commerce on a sound foundation. A nation that has to hire shipping to freight its products overseas or to import other products builds all its prosperity on a foundation of sand.

The following table affords some indication of the extent to which Canada has become dependent on foreign shipping:

Number and tonnage of sea-going vessels entered at and cleared from Canadian ports during the year 1917:

Owning Nationality.	Number.	Tonnage.
Canada	12,141	4,343,000
United Kingdom	7,387	16,144,000
Denmark	502	322,000
Italy	65	226,000
Japan	375	1,531,000
Netherlands	53	132,000
Norway	939	1,723,000
Russia	94	87,000
Sweden	42	55,000
United States	16,224	4,730,000
Other Countries (excluding Germany, etc.)	206	174,000
	38,128	29,267,000

It will be found by calculating the average tonnage of the various nationalities using Canadian ports that the Canadian

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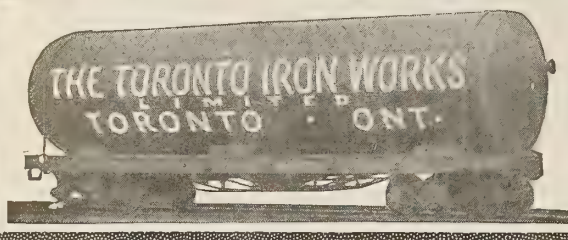
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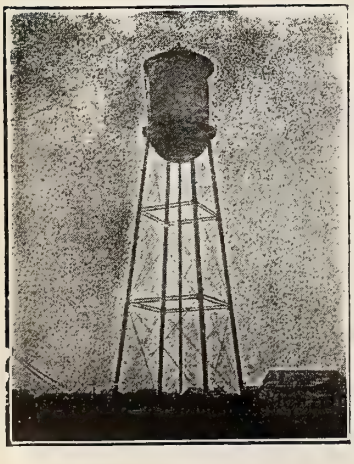
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and American-owned vessels are the smallest in the list, the average of those coming from the other side of the Atlantic being considerably greater. In this connection the following table is of interest:

Average tonnage of vessels using Canadian ports.

	Tons.
Canadian	350
American	295
British	2,186
Other Countries	1,786
Average of all countries using Canadian ports	770

Superficially examined, it appears only natural that the mercantile marines that have a long way to come should build bigger vessels, but a very little consideration will show what a fallacy that argument is. European countries are just as far from Canada as Canada is from European countries and *vice versa*, and there is no reason whatever, apart from the fact that the European countries have been longer in the business, why the latter should build vessels of six times the tonnage of those built in Canada.

For this purpose, the figures for the United States are somewhat misleading. It is only natural that that country should send vessels of small tonnage up to Canadian ports, but that does not deny the fact that it possesses plenty of larger vessels for the trans-Atlantic trade.

Why Canada Fails

How is it that Canada also does not possess her fair share of this all-important trade? Her shipbuilders can build equal to any in the world, as their activities of the past two or three years abundantly show. Her Government is taking a keen interest in the building up of a Canadian-owned merchant marine, millions of dollars a year being appropriated for this purpose.

It may be argued that by far the greater portion of the ships using Canadian ports are British, and that as these are of the same Empire, they are as good as Canadian ships. So far as patriotism or participation in the Empire's wars are concerned, that is perfectly true, but in trade matters the case is not quite parallel.

The profits made by British shipping companies by freighting Canadian products across the Atlantic only indirectly help to build up Canadian prosperity, and in any case they are not desirable because the system places Canada in the position of being dependent on outside interests. Overseas tonnage is the foundation of the prosperity of any country that does a large export and import trade, as most countries do nowadays, and the country that does not own its own overseas tonnage is missing an essential part of the profits on its trading.

Take the case of a western farmer who exports wheat to Europe. It passes through half a dozen hands before it reaches its destination, and it makes a corresponding number of separate profits. The profit on sea haulage is not the least of these, and if Canada owned her own tonnage, as she could do and should do, that profit would be earned by Canadian-owned shipping companies and would be spent in Canada, thereby circulating a new circle of prosperity.

Builds Up Prosperity Abroad

That, however, is not the case except in so far as a relatively insignificant small portion of this sea haulage profit is concerned. Most of it is earned by British and other ships and it goes to build up prosperity in those countries. Is it right that the products of Canadian industry should thus go to help other countries?

It is not right, and if a writer tried to argue in any of those other countries, even in Britain itself, that it made no differ-

RE-CONSTRUCTION

Canada expects that great advances shall be registered within the immediate future in the figures of production from the fields of the country's natural resources in field, forest, mine and fisheries.

Canada also expects that the manufacturing and commercial organizations shall strive with might and main to serve the domestic market, and as much as they can of those beyond the seas, where the ravages of the war have caused an immense amount of damage, necessitating plans for rebuilding on a scale never faced before in history.

The Canadian Northern Railway serves an Empire equal in extent to the wealthiest, most productive part of Europe. The vast area is rich in resources. There is fertile land in abundance, pulp forests of magnificent proportions, mineral fields that are little more than scratched.

There is room for a vast number of new producers. If "opportunity" may be measured by the relation between the number of people in a given locality, and the free gifts that nature provides, there are awaiting opportunities in abundance within the limits of the resources rendered accessible by Canadian Northern Railway lines.

They serve now the most productive grain growing and mixed farming areas in Western Canada And its lines cover :

GRAIN MARKETING—Collecting elevators having 26% of the total capacity of Western Canada are served by the Canadian Northern Railway; licensed elevators having 47% of the total capacity in Canada are on the Canadian Northern Railway line.

FLOUR—Flour Mills having 51% of the total daily capacity in Canada are on lines of the Canadian Northern Railway. In British Columbia the C.N.R. proportion is 90% ; in Alberta 44% ; in Saskatchewan 74% ; in Manitoba 81% ; in Ontario 34% ; in Quebec 90% ; in Nova Scotia 15%. At Duluth, which is considered separately, the daily capacity is 5,500 barrels per day.

LUMBER—Lumber Mills producing 30% of the output in Canada are served by the Canadian Northern Railway, while 32% of the total is marketed by water. In British Columbia the Canadian Northern proportion is 34% ; in Alberta, Saskatchewan and Manitoba 70% ; in Ontario 33% ; in Quebec 28% ; in Nova Scotia 28%.

PULP AND PAPER—Pulp and Paper plants having 53% of the capacity of Canada are served by Canadian Northern Railway lines. In Ontario the Canadian Northern proportion is 60% ; in Quebec 64%, and in Nova Scotia 50%.

COAL—For the last coal year the Canadian Northern handled from stations along its western lines, 1,390,496 tons. Of these more than a million tons were handled from mines along its lines in Alberta and Saskatchewan. The remainder would be that shipped west from Port Arthur and Duluth.

LIVE STOCK—During the calendar year 1917 live stock received at Winnipeg, Calgary and Edmonton from stations on the Canadian Northern Railway western lines, totalled 419,737 heads. The bulk of these of course consisted of cattle and hogs. This total is an increase of nearly one hundred thousand heads over the year 1916, and which indicates to a striking degree the rapid development that is taking place in the tremendous mixed-farming areas served by the western lines of the Canadian Northern Railway System.

FARM AND DAIRY PRODUCTS—This is usually regarded as an Eastern Canada production, but there has been a marked growth in the totals of butter, cheese and eggs handled over the western lines of the Canadian Northern Railway System. During 1917 there were handled from points west of Port Arthur 4,073 tons of butter; 2,990 tons of eggs and 536 tons of cheese—a total of 7,599 tons, and an increase of nearly one thousand tons over the shipments for 1916, and surely an eloquent evidence of the enlarging activities along these lines in the territory served by the Canadian Northern in Western Canada.

CANADIAN NORTHERN

AFTER THE WAR these great essential industries will leap ahead once the people, long inured to the stern demands of war, have re-directed their energies to the prosaic occupations of peace.

The Canadian Northern Railway System is being "tuned" to meet the Days of Test that lie ahead. From coast to coast its capacities are being measured, Co-ordination is smoothing all departmental action, making for decision and despatch. The planning of the management is for the days when the road—a public service on a gigantic scale—will have a vital part to play in the re-building of the prosperity of the nation.

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W. A. RIDDELL, M.A., Ph.D., Superintendent. Phone Main 5800

HON. F. G. MACDIARMID, Minister of Public Works and Highways.

TRADES AND LABOUR BRANCH

NOTICE

To Manufacturers, Dealers, and Users of Steam Boilers

All steam boilers built in, or entering the Province of Ontario, and boilers exchanged or repaired, are subject to Government Inspection as prescribed in the Steam Boilers Act, 3 George V., C. 61.

Before any work of repair or alteration is commenced on any boiler, notice must be sent to the Department stating the nature and extent of the repairs or alterations proposed to be made. If the Chief Inspector should consider such repairs or alterations of an extensive character, the boiler must be inspected in accordance with the Regulations by an Inspector authorized under the Act.

All communications should be addressed to the Steam Boiler Branch, Department of Public Works, Parliament Bldgs., Toronto.

HON. F. G. MACDIARMID, Minister of Public Works.

D. M. MEDCALF, Chief Inspector of Steam Boilers.

W. A. RIDDELL, M.A., Ph.D., Superintendent.

TRADES AND LABOUR BRANCH

NOTICE

TO STATIONARY AND HOISTING ENGINEERS

Everyone operating a STATIONARY steam plant of 50 h.p. or over in the Province of Ontario must hold a Stationary Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Everyone operating a HOISTING steam plant working at a pressure of 20 pounds or over irrespective of horse power, and used for hoisting in structural operations or excavating purposes, in the Province of Ontario, must hold a Hoisting Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Application forms for obtaining STATIONARY or HOISTING Engineers' Certificates, may be had upon applying to the Chairman.

HON. F. G. MACDIARMID, Minister of Public Works and Highways.

W. C. McGHIE, Chairman of Board.

W. A. RIDDELL, M.A., Ph.D., Superintendent.

Established 1849

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The Bradstreet Company gathers information that reflects the financial condition and the controlling circumstances of every seeker of mercantile credit. Its business may be defined as of the merchants, by the merchants, for the merchants. In procuring, verifying, and promulgating information, no effort is spared, and no reasonable expense considered too great, that the results may justify its claim as an authority on all matters affecting commercial affairs and mercantile credit. Its offices and connections have been steadily extended, and it furnishes information concerning mercantile persons throughout the civilized world. Subscriptions are based on the service furnished, and are available only by reputable wholesale, jobbing and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. Correspondence invited.

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THOS. C. IRVING, Gen. Man. Western Canada, Toronto

ence who owned the ships that freighted their products to the Empire overseas, he would be laughed at.

Canada must own her own merchant marine. She is taking the first steps in that direction by the extensive shipbuilding programme now proceeding under the ægis of the Minister of Marine and Fisheries. Canada can build as big ships and as good ships as any other country in the world. She has not in the past been able to build them as cheaply as Britain could because, *inter alia*, of the heavy tariff on many vital materials, but this tariff is now lifted or decreased, and the establishment of a steel rolling mill or mills for the rolling of ship plates and angles and other important parts will effect a still further improvement.

It is not an unreasonable suggestion that the Government, in making its grants to tonnage using Canadian ports, should distinguish perhaps more than it does between foreign and Canadian owned shipping. What exactly is done in this way is not known, but it seems to be the part of commonsense to help the home industry rather than that of outsiders.

On a basis of subsidies all are equal. If the merchant marines of other countries were able to make a trans-Atlantic service pay on its merits, it might be argued that Canada should let well alone until her own people were prepared to compete on even terms, although that argument could easily be controverted. Many would suggest that it would be better to pay a Canadian shipping company a subsidy of $5,000 a year than to pay an outside company half as much. What this country lost out of one pocket this way, she would gain in another.

The huge programme of national shipbuilding which the Government has launched is excellent in its purpose, whether one agrees exactly with the method adopted or not. People are saying that it should be accompanied by a parallel programme, definitely announced, for encouraging the establishment of Canadian-owned services, not merely between Canadian ports but trans-Atlantic and trans-Pacific as well. That is only a broad suggestion and it is addressed, not merely to the Government, but also to the big financial interests with whom the Government would have to co-operate in such a matter. As soon as shipping operations resume a normal basis, the greatly increased number of Canadian shipowners will find that they require some financial help to bring operating costs to a paying level. It may be that the Government has already taken cognizance of this eventuality and is prepared to meet it. It will probably not be long delayed. In the meantime it is understood that the Government contemplates operating the ships itself.

After-the-War Autos

For some time a favorite topic for speculation by the British automobile papers has been the kind of car that will be turned out after the war is over, states the *Scientific American*, and in view of the unusual experience that is being had with motor vehicles of all kinds in war work, many people apparently anticipate that the car of the future will be radically different from present designs. These ideas have also prevailed to a limited extent in this country, but an authority on the subject points out the wonderful work that these vehicles are doing under the most adverse circumstances in the war area, and have been doing ever since the beginning, and that this is ample proof of the remarkable degree of perfection that has already been attained in automobile construction. From this point of view it would seem that no radical changes are necessary, or to be expected; although undoubtedly many improvements in details will naturally be forthcoming when all the facts have been studied and our manufacturers have time to undertake them.

Buyers' Guide to Canadian Manufactures

A List of Articles which will Enable the Purchaser to Know the Manufacturers of Made-in-Canada Goods. For Rates of Insertion in this Department write to the Advertising Manager of "Industrial Canada," Toronto

ABRASIVES
*D. A. Brebner, Ltd., Toronto.
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
*Dominion Abrasive Wheel Co., New Toronto, Ont.

ACCOUNT BOOKS
*The Brown Bros., Ltd., Toronto.

ACETYLENE GAS
*The Prest-O-Lite Company.

ACETYLENE GAS BURNERS
Economiq Acetylene Burner Co., Toronto.
*The Prest-O-Lite Company.

ACIDS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal.

ADVERTISING NOVELTIES
Lawson & Jones, Ltd., London, Ont.

AERATED BEVERAGES
Charles Gurd & Co., Ltd., Montreal, Que.
J. J. McLaughlin, Ltd., Toronto.

AIR COMPRESSORS
*Canadian Ingersoll-Rand Co., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

ALCOHOL
*Hiram Walker & Sons, Limited, Walkerville, Ont.
*H. Corby Distillery Co., Limited, Montreal.

ALUMINUM
*Northern Aluminum Co., Ltd., 1805 Traders Bank, Toronto.

ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto

AMMONIA
Canadian Ammonia Co., Ltd., Toronto.

ANGLE BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Steel Company of Canada, Limited, Hamilton, Ont.

ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ATTACHMENT PLUGS
*Crouse-Hinds Co., Ltd., Toronto.

AUTOGRAPHIC REGISTERS
*Autographic Register Co., Ltd., Montreal.

AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.

AUTOMATIC SCREW MACHINE PRODUCTS
*United Brass & Lead, Ltd., Toronto

AUTOMOBILE ACCESSORIES
*McKinnon Industries Limited, St. Catharines, Ont.
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton, Ont.

AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
*United Brass & Lead, Ltd., Toronto

AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton, Ont.

AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

BABBITT METAL
Alenzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.

BAGS
*Scythes & Co., Ltd., Toronto.

BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.

BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.

BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.

BAND RESAWS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

BANK AND OFFICE RAILINGS AND CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

BARS, iron
London Rolling Mill Co., Limited, London, Ont.

BARS, steel
London Rolling Mill Co., Limited, London, Ont.

BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.

BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.

BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.

BATTERIES, Flashlight
The Canadian National Carbon Co., Ltd., Toronto.

BATTERIES, Storage
The Canadian National Carbon Co., Ltd., Toronto.

BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto

BEARINGS, pillow block and upright
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.

BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.

BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.

BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.

BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.

BENT GOODS
The Crown Lumber Co., Woodstock, Ont.

BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.

BISCUITS
The Montreal Biscuit Co., Montreal, Que.

BLACK SHEETS
*A. C. Leslie & Co., Montreal.

BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton, Ont.

BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.

BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.

BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor, Ont.

BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited, Montreal.

BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.

BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.

BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.

BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.

BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILER STANDS
Anthes Foundry Ltd., Toronto.

BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.

BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The National Acme Mfg Co., Montreal., Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.
*United Brass & Lead, Ltd., Toronto

BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.

BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.

BOOKLETS
R. G. McLean, Toronto.

BOOKS, blank
*The Brown Bros., Ltd., Toronto.

BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.

BOTTLES, Hot Water, Brass, Nickel Plated.
*Wentworth Mfg. Co., Hamilton.

BOXES
*Crouse-Hinds Co., Ltd., Toronto.

BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.

BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.

BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.

BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.

BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited, Montreal.

BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.

*For Display Advertisement see Index, Pages 1-2

BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS GOODS
*Penberthy Injector Co., Ltd., Windsor.
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead Ltd., Toronto.
*Wentworth Mfg. Co., Hamilton.
BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton Ont.
BRASS RODS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto
BRASS SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton Ont
BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS WORK, special
Bawden Machine Co., Ltd., Toronto
*H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*United Brass & Lead, Ltd., Toronto
BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.
BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.
BRIDGES, Railway and Highway
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.

BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRONZE SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRONZE TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.
BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.
BUCKET TANKS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
BUCKLES, harness and trunk
*McKinnon Industries Limited, St. Catharines, Ont.
BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St Johns, Que.
Toronto.
BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Barrett Co., Ltd., Toronto and Montreal.
BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal, Que.
CABLE ACCESSORIES
*Crouse-Hinds Co., Ltd., Toronto.
CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.
CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.
CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.
CALENDARS, ADVERTISING NOVELTIES, etc.
Lawson & Jones, Limited, London, Ont.
CAMERAS
Canadian Kodak Co., Limited, Toronto.
CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.
CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.
CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.
CANVAS
*Scythes & Co., Ltd., Toronto.

CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.
CAPS FOR HUBS
*McKinnon Industries Limited, St. Catharines, Ont.
CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.
CARBONS, Electric
Canadian National Carbon Co., Ltd., Toronto.
CARBONS (headlight)
*Crouse-Hinds Co., Ltd., Toronto.
CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.
CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited.
CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.
CARRIAGE CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.
CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.
CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier
CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.
CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.
CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.
CARTONS, lithographed
Harris Lithographing Company, Limited, Toronto.
CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited Toronto
*Crouse-Hinds Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
*Tallman Brass & Metal Co., Hamilton, Ont.
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass
*Booth-Coulter Copper & Brass Co., Limited Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, grey iron
*Canadian Rumely Co., Limited, Toronto, Ont.
*Crouse-Hinds Co., Ltd., Toronto.
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
CASTINGS, malleable iron
*Crouse-Hinds Co., Ltd., Toronto.
*Galt Malleable Iron Co., Ltd. Galt, Ont.
CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.
*Wm. Kennedy & Sons, Ltd., Owen Sound.
CATALOGUE MAKERS
Grip, Ltd., Toronto.
CATALOGUE COVERS, by new lithographing process
Harris Lithographing Company, Limited, Toronto.
CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor,
CELLBOARD
Adams Cellboard Co., Toronto,
CEMENT GUNS
Steel and Radiation, Ltd., Toronto.
CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.
CENTRIFUGAL PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.
CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.
CHAIRS FOR AUTOMOBILES, camp, boat
*McKinnon Industries Limited, St. Catharines, Ont.
CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.
CHECKS, swing checks, etc
*Mueller Mfg. Co., Ltd., Sarnia.
CHEMICALS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.
CHEMISTS, INDUSTRIAL
*Milton Hersey Co., Montreal.
CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.
CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.
CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland, Ont.
CLOCKS, TIME
*International Business Machines, Limited, Toronto.
CLOCKS, WATCHMEN'S
*The Bennett & Wright Co., Ltd., Toronto, Ont.
CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.
CLOTHING
John W. Peck & Co., Ltd., Montreal Que.
CLOTHING, leather and sheepskin lined coats
*A R Clarke & Co., Ltd., Toronto.
CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co Ltd., Orillia, Ont.
CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.
CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.
CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd. Galt, Ont.
COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.
COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
COBALT OXIDE
The Coniagas Reduction Co., Ltd., St Catharines, Ont.
COFFEE
S. H Ewing & Sons, Montreal Que

For Display Advertisement see Index, Pages 1-2

COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co. Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited Hamilton, Ont.
COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto
COLLAR BUTTONS
The Arlington Co. of Canada, Ltd. Toronto.
COLLARS
The Standard Shirt Co., Limited Montreal, Que.
COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.
COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
COLORS
Brandram-Henderson, Limited Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd. Toronto.
COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.
CONCRETE COATINGS, PAINTS, ETC.
*Beveridge Paper Co., Ltd., Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont
The Imperial Varnish & Color Co., Limited, Toronto.
CONDUITS FOR INTERIOR WIRING
*Conduits Company Ltd Toronto.
CONDULET BOX FITTINGS
*Crouse-Hinds Co., Ltd., Toronto.
CONDULETS (Marine)
*Crouse-Hinds Co., Ltd., Toronto.
CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal.
CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.
CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland.
*Canadian Allis-Chalmers, Limited, Toronto.
CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER, SHEETS, PLATES, BARS, RODS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited Toronto
COPPER TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.
COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CORKS
S. H. Ewing & Sons, Montreal, Que.
CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.
CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
Corrugated Paper Box Co., Ltd., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
CORUNDUM, artificial
*D. A. Brebner, Ltd., Toronto.
CORSETS
Dominion Corset Co., Quebec, Que.
COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.
COTTONADES
Hamilton Cotton Co., Hamilton, Ont.
COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.
COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
CRANES
*Northern Crane Works, Walkerville, Ont.
CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.
CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.
CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
CREOSOTED MATERIALS
*The Barrett Co., Ltd., Toronto and Montreal.
CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.
CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.
CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
CUPS, presentation
Standard Silver Co., Toronto.
CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.
CURLED HAIR
*Delany and Pettit, Ltd., Toronto.
CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.
CUTLERY
Standard Silver Co., Toronto.
CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.
DASHES, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.
DECALCOMANIA TRANSFERS
Canada Decalcomania Co., Limited, Toronto.
DECK PLUGS (electric marine)
*Crouse-Hinds Co., Ltd., Toronto.
DENIMS
Hamilton Cotton Co., Hamilton.
DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
DESIGNERS
Ontario Engraving Co., Hamilton. Ont.
DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.
DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
DESSICATED VEGETABLES
Grahams Limited, Belleville.
DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.
DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
*John Whitfield Co., Toronto.
DISINFECTING APPARATUS
Spramotor Co., London, Ont.
DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.
DOUBLETREES
*McKinnon Industries Limited, St. Catharines, Ont.
DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.
DRESSING, belt.
Sadler & Haworth, Montreal, Que.
DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St Toronto.
DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILL PRESSES
*Canada Machinery Corporation, Limited, Galt, Ont.
DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.
DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.
DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.
DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
DROP HAMMERS
*Canada Machinery Corporation, Limited, Galt, Ont.
DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.
DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.
DYNAMITE
Canadian Explosives, Limited, Montreal, Que.
DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.
EIDERDOWN
Galt Knitting Co., Ltd., Galt.
ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited. Montreal.
ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.
ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELECTRIC LAMPS
Packard Electric Co., Ltd., Toronto.
ELECTRIC PLATE WARE
Roden Bros. Ltd. Toronto
ELECTRIC BRANDING TOOLS
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
ELECTRIC RAILWAY EQUIPMENT
*Crouse-Hinds Co., Ltd., Toronto.
ELECTRODES, Carbon
Canadian National Carbon Co., Ltd., Toronto.
ELECTROPLATING
*United Brass & Lead, Ltd., Toronto
ELECTRO PLATING
Central Press Agency, Toronto.
ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd. Hamilton, Ont
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited. Montreal, Que
ELECTRIC SOLDERING IRON
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.
ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
ELEVATORS
*Jenckes Machine Co., Sherbrooke,
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
*The A. B. Ormsby Co., Limited, Toronto.
ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton Ont.
ELEVATORS, hydraulic and electric
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.
ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.
ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, gas and gasoline
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.
ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.
ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont
ENGINES, Marine, Gasoline and Kerosine
Bruce, Stewart & Co., Ltd., Charlottetown, P.E.I.
ENGINES, oil, gasoline and kerosene
*Golson Manufacturing Co., Ltd., Guelph.
ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.
ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.

ELEVATORS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
ENGRAVERS
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton.
ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.
ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa.
ENGRAVING
*J L. Jones Engraving Company, Toronto.
ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa Limited, Ottawa, Ont.
ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
EVAPORATED APPLES
Grahams Limited, Belleville.
ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.
EVENERS, for 2, 3, 4, 6 and 8 horses
*McKinnon Industries Limited, St. Catharines, Ont.
EXCELSIOR
*Delany & Pettit, Ltd., Toronto.
EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.
EXPLOSIVES, high
Canadian Explosives Ltd., Montreal.
FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.
FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.
FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
FASTENERS, belt
*Sadler & Haworth, Montreal, Que.
FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited Montreal.
FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.
FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.
FENCING, wire
C. H. Johnson & Sons, Limited. Montreal, Que.
FENDERS, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.
FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull, Que.
FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.
FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope.
FILING CABINETS
*Office Specialty Co., Newmarket.
FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.
FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.
FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.
FIRE BRICK
Dominion Fire Brick and Clay Products, Ltd., Moose Jaw
FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.
FIRE BRICK AND CLAY
The Dominion Fire Brick and Clay Products, Ltd., Moose Jaw, Sask.
FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.
FIRECLAY
*Jas. W. Foley & Co., St. John, N.B.
FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.
FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.
FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.
FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.
FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.
FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.
FITTINGS, steam
Warden King, Ltd., Montreal, Que.
FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.
FLAGS
*Scythes & Co., Limited, Toronto.
FLANGES, for wheels
*McKinnon Industries Limited, St. Catharines, Ont.
FLEXIBLE COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
FLOODLIGHTS (electric)
*Crouse-Hinds Co., Ltd., Toronto.
FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont
FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.
FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.
FORGINGS
Canada Forge Co., Ltd., Welland.
*The Steel Co. of Canada, Limited. Hamilton, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
FORGINGS, drop
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.
FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.
FOUNTAINS, drinking
*Mueller Mfg. Co., Ltd., Sarnia.
FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
FUEL
Standard Fuel Co., Toronto.
FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.
FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.
FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.
FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.
FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.
FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.
FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont
FUSE BOXES
*Crouse-Hinds Co., Ltd., Toronto.
FUSE PLUGS AND FUSES, refillable
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
FUSES
*Economy Fuse and Mfg. Co., Montreal.
GALVANIZED IRON
*A. C. Leslie & Co., Montreal.
GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
*McKinnon Industries Limited, St. Catharines, Ont.
GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
GASOLINE
*The Imperial Oil Co., Limited, Toronto.
GAUGES
*Brown Engineering Corporation, Toronto.
*John Whitfield Co., Toronto.
GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.
GELATINE
Canada Gelatine Co., Ltd., Brantford.
GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.
GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.
GILDING METAL.
*Dominion Copper Products Company, Limited, Montreal.
GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.
GLASSWARE, cut
Roden Bros., Ltd., Toronto.
GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.
GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.
GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.
GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.
GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.
GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.
GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.
GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.
GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited, New Toronto.
GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.
GUARDS (Conduiet)
*Crouse-Hinds Co., Ltd., Toronto.
GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.
GUY RODS
*Crouse-Hinds Co., Ltd., Toronto.
GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.
GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
HACK SAW BLADES and FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W. Fearman Co., Ltd., Hamilton, Ont.
HAMES, steel and iron
*McKinnon Industries Limited, St. Catharines, Ont.

*For Display Advertisement see Index, Pages 1-2

HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
Wilson Bros. Limited, Collingwood, Ont
HARDWOOD INTERIOR FINISH
Wilson Bros., Ltd., Collingwood, Ont.
HARDWOOD VENEER DOORS TO DETAIL
Wilson Bros., Ltd., Collingwood, Ont.
HARNESS
Lamontagne Ltd., Montreal, Que.
HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HARNESS HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEADLIGHT (electric)
*Crouse-Hinds Co., Ltd., Toronto.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C. A Dunham Co., Ltd., Toronto.
HEMLOCK, union and oak sole
Breithaupt Leather Co., Ltd., Kitchener, Ont.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont
HOOKS, for logging chains
*McKinnon Industries Limited, St. Catharines, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HUB CAPS
*McKinnon Industries Limited, St. Catharines, Ont.
HUBS, for Ford cars
*McKinnon Industries Limited, St. Catharines, Ont.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto
*William R. Perrin, Ltd., Toronto
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited, Toronto
ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal, Que.
INCUBATORS & BROODERS
Lee Mfg Co., Ltd., Pembroke, Ont
INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont.
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited Montreal.
INSULATORS
*Crouse-Hinds Co., Ltd., Toronto.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co. of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St Johns, Que.
IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth, N.S.
IRON AND STEEL BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRON, LEAD AND PUTTY
A R Whittall, Montreal, Que.
JACKS
*Globe Engineering Co., Limited, Hamilton, Ont.
JAM, canned goods, etc.
E. D Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.
JOINTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal Que.
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
*The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
*The Peter Hay Knife Co., Limited, Galt. Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Company, Limited, Toronto.
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville Ont.
LAMP GLOBES
*Crouse-Hinds Co., Ltd., Toronto.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LATHES
*Canada Machinery Corporation, Limited, Galt, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.
LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
*United Brass & Lead, Ltd., Toronto
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER DASHES AND FENDERS
*McKinnon Industries Limited, St. Catharines, Ont.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock, union and oak sole
The Breithaupt Leather Co., Ltd., Kitchener, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.
LIGHTS (marine, side and port)
*Crouse-Hinds Co., Ltd., Toronto.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Company, Limited, Toronto.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
*United Brass & Lead, Ltd., Toronto
LOGGING CHAIN HOOKS
*McKinnon Industries Limited, St. Catharines, Ont.
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.
LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.

*For Display Advertisement see Index, Pages 1-2

MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
Henry Disston and Sons, Toronto

MACHINE TOOLS
*Canada Machinery Corporation Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd Dundas, Ont.
*United Brass & Lead, Ltd., Toronto

MACHINE WORK, special
*United Brass & Lead, Ltd., Toronto

MACHINE WORK, special and repairs
*Canadian Rumely Co., Limited Toronto, Ont.

MACHINERY AND UTENSILS FOR BAKERS
Fletcher Mfg. Co., Ltd., Toronto.

MACHINERY AND UTENSILS FOR CANDY
Fletcher Mfg. Co., Ltd., Toronto.

MACHINERY AND UTENSILS FOR ICE CREAM
Fletcher Mfg. Co., Ltd., Toronto.

MACHINERY, conveying
*Canadian Link-Belt Co., Toronto
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd. Galt, Ont.

MACHINERY, flour mill
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

MACHINERY, grinding
*Canadian Hart Wheels, Limited Hamilton, Ont.

MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland.
*Northern Crane Works, Limited Walkerville, Ont.

MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.

MACHINERY, iron working
*Canada Machinery Corporation Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd. Dundas, Ont.

MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited. Brantford. Ont.

MACHINERY, punching and shearing.
*Canada Machinery Corporation Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.

MACHINERY, railroad and car-shop
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.

MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.

MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.

MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton.
*Canada Machinery Corporation Limited, Galt, Ont.

MACHINERY, special
Bawden Machine Co., Limited, Toronto.

MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.

MACHINERY, woodworking
*Canada Machinery Corporation, Limited, Galt, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited Brantford, Ont.

MACHINE WORK, special and repairs
*Canadian Rumely Co., Ltd., Toronto, Ont.

MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.

MACHINES, painting
Spramotor Co., London, Ont.

MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.

MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.

MALLEABLE, for carriages
*McKinnon Industries Limited, St. Catharines, Ont.

MALLEABLE IRON CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.

MAPLE PRODUCTS
*Maples, Limited, Toronto.

MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.

MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

MATCHES
*The E. B. Eddy Co., Ltd., Hull.

MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.

METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.

METAL CEILINGS
*The Pedlar People Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.

METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont
*The Pedlar People Limited, Oshawa.

METAL PACKING
*Garlock Packing Company, Hamilton, Ont.

METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited. Toronto.

METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

METAL SHINGLES
*The Pedlar People, Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.

MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.

MINING MACHINERY
*Canadian Allis-Chalmers, Limited Toronto.

MITTS AND GLOVES (Indian, tanned deerskins)
Holt, Renfrew Ltd., Quebec, Que
A. R. Clarke & Co., Ltd., Toronto

MIXERS, chocolate, dough and paint
Fletcher Mfg. Co., Ltd., Toronto.

MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.

MORTISERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd. Hamilton, Ont.

MOTOR CARS
*Ford Co. of Canada, Ford, Ont.

MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.

MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd. Hamilton, Ont.
Consolidated Electric Co., Limited Toronto.
*Jones & Moore Electric Co., Ltd Toronto.
*Canadian Crocker-Wheeler Co Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton

MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.

MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.

MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

MOULDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

NAILS
*The Steel Co. of Canada, Limited Hamilton, Ont.

NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.

NAILS, wire
Parmenter and Bulloch Co., Ltd. Gananoque, Ont.
The Graham Nail Works, Toronto

NAPHTHA
*The Imperial Oil Co., Limited Toronto.

NECKYOKES
*McKinnon Industries Limited, St. Catharines, Ont.

NICKEL OXIDE
Coniagas Reduction Co., Limited St. Catharines. Ont

NIPPLES, for radiators
*McKinnon Industries Limited, St. Catharines, Ont.

NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited Hamilton. Ont.
*United Brass & Lead, Ltd., Toronto

OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

OARLOCKS
*McKinnon Industries Limited, St. Catharines, Ont.

OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.

OFFICE DESKS
*Goderich Organ Co., Goderich. Ont.

OFFICE EQUIPMENT
*Office Specialty Co., Newmarket. Ont.

OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

OILS
Brandram-Henderson, Ltd., Montreal. Que.
A. Ramsay & Son Co., Montreal.
Sherwin-Williams Co. of Canada, Limited. Montreal, Que.

OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto

OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto

OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton.
*Imperial Oil Co., Toronto.

OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*The Imperial Oil Co., Limited, Toronto.

OTTS, road
*The Barrett Co., Ltd., Toronto and Montreal.

OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited. Montreal, Que.

ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.

ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.

ORGANS, parlor
*Goderich Organ Co., Goderich. Ont

ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.

OVERALLS
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.

OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.

OVERHEAD RUNWAYS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Richards-Wilcox Canadian Co., Limited, London, Ont.

OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.

OXYGEN
*L'Air Liquide Society, Montreal.

PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.

PACKING BOXES
Barchard & Co., Limited, Toronto.

PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.

PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.

PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.

PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.

PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.

PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal. Que.

PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

PAINTS, preservative
Standard Paint Co. of Canada, Limited. Montreal. Que.
*The Barrett Co., Ltd., Toronto and Montreal.

PANELBOARDS
*Crouse-Hinds Co., Ltd., Toronto.

PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.

PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown. Ont.

PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited. Toronto.

PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown. Ont.

PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown. Ont.

PAPER, envelope
Provincial Paper Mills Limited, Georgetown. Ont.
The Toronto Paper Manufacturing Co., Cornwall Ont

PAPER, enamelled blotting
*Provincial Paper Mills, Limited. Georgetown. Ont.

PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited Montreal.
PAPER, label
*Provincial Paper Mills, Limited. Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Staunton, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
Howard Smith Paper Mills, Limited, Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.
PATENT LITIGATION
Ridout and Maybee, Toronto.
PAY ROLL AUDITS
*International Business Machines, Limited, Toronto.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co., Ltd. Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co. Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto
PIANO KEYS
The Otto Higel Co., Ltd., Toronto
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich Ont
PIG IRON
*The Steel Co. of Canada, Limited Hamilton, Ont.
PINE DOORS, SASH, MOULDINGS, ETC.
Wilson Bros., Limited, Collingwood Ont.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited. Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.

PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Authes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUGS
*Crouse-Hinds Co., Ltd., Toronto.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited. Montreal.
*William R. Perrin, Ltd., Toronto
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
*William R. Perrin, Ltd., Toronto
PRESSES, hydraulic
Hydraulic Machinery Co., Limited. Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton Ont.
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSES, veneer
*Canada Machinery Corporation, Limited, Galt, Ont.
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Ross & Mann, Ltd., Toronto.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULLEYS, wood split.
*Bernard Industrial Co., Fortierville, P.Q.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
Riordan Sales Co., Ltd., Montreal.
PULP, Unbleached Sulphite.
Riordan Sales Co., Ltd., Montreal.
PULP, sulphate and sulphite.
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited Toronto.
*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London, Ont.
PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd. Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart Turner Machine Co., Ltd., Hamilton, Ont.
John McDougall, Caledonian Iron Works Co., Ltd., Montreal, Que.
PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.
PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.
RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.
RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont
*United Brass & Lead, Ltd., Toronto
RAILS, light
Hammant Steel Car and Engineering Works, Hamilton
RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal Que.
RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.
RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.

READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.
REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.
RECEPTACLES
*Crouse-Hinds Co., Ltd., Toronto.
REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.
REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.
REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.
REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.
REINFORCEMENT BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.
RINGS, gold
Caron Bros., Montreal, Que.
RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ROLLING STEEL DOORS
*A. B. Ormsby Co., Ltd., Toronto.
ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.
ROOFING, metal
*The A. B. Ormsby Co., Limited, Toronto.
ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
ROOFINGS, plastic and liquid
*Beveridge Paper Co., Limited, Montreal.
ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.
ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.
RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.
RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.
RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

*For Display Advertisement see Index, Pages 1-2

*Garlock Packing Company, Hamilton, Ont.

RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.

SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.

SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.

SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal.

SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SANDPAPER
*Delany and Pettit, Ltd., Toronto.

SASH CORD, cotton
Hamilton Cotton Co., Hamilton,

SALT
Canadian Salt Co., Ltd., Windsor,

SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.

SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.

SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.

SAWS, cross-cut and band
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWS, circular mill
Shurly & Deitrich, Galt, Ont.

SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.

SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.

SAWS, rip
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.

SAWS, specialties
*Victor Saw Works, Ltd., Hamilton. Ont.

SCALES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton,

SCALES, counter
The Gurney Scale Co., Hamilton,

SCALES, railway track, etc.
The Gurney Scale Co., Hamilton,

SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.

SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris.
Ham & Nott Co., Ltd., Brantford,

SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
*United Brass & Lead, Ltd., Toronto

SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.

SECURITIES, engraved
American Bank Note Co., Ottawa,

SERGES
Rosamond Woollen Co., Almonte,

SHAFTING
Canada Forge Co., Ltd., Welland,
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford,

SHAPERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

SHEATHING
*The Barrett Co., Ltd., Toronto and Montreal.

SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.

SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.
*The A. B. Ormsby Co., Limited, Toronto.

SHEETS, ETC.
*Tallhan Brass & Metal Co., Hamilton, Ont.

SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited,

SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.

SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

SHIP BUILDERS
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.

SHIRTS
John W. Peck & Co., Ltd., Montreal, Que.

SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.

SHOE PEGWOOD
O. Chalifour, Quebec, Que.

SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.

SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.

SHOOKS
Barchard & Co., Ltd., Montreal.

SIGNAL CELLS
Canadian National Carbon Co., Ltd., Toronto.

SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.

SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.

SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.

SILVERWARE, sterling
Roden Bros., Limited, Toronto.

SINGLETREES
*McKinnon Industries Limited, St. Catharines, Ont.

SINKS, enamelled
Amherst Foundry Co., Limited Amherst, N.S.

SKATES, figure
Canada Cycle and Motor Co., Ltd.

SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.

SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

SLEIGHS
Tudhope-Anderson Co., Limited. Orillia, Ont.

SLIPPERS
Ames-Holden-McCready, Ltd., Montreal. Que.

SLOTTERS
*Canada Machinery Corporation, Limited, Galt, Ont.

SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.

SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

SNAPS, for harness
*McKinnon Industries Limited, St. Catharines, Ont.

SOAPS
J. Barsalou & Co., Ltd., Montreal.

SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.

SOCKETS
*Crouse-Hinds Co., Ltd., Toronto.

SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto

SODA WATER FOUNTAINS AND ACCESSORIES
Fletcher Mfg. Co., Ltd., Toronto.

SOIL PIPE
Anthes Foundry, Ltd., Toronto.

SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

SOLDER, silver
Geo. H. Lees & Co., Hamilton.

SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.

SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton Ont.

SNOWSHOES
Holt, Renfrew, Ltd. Quebec, Que.

SPECIAL MACHINERY
*Globe Engineering Co., Limited, Hamilton, Ont.

SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.

SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.

SPIRITS
*Hiram Walker & Sons, Limited, Walkerville, Ont.

SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.

SPRAYERS
Spramotor Co., London, Ont.

SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.

SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.

STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.

STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.

STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.
*Wentworth Mfg. Co., Hamilton.

STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STAMP MILLS
*Jenckes Machine Co., Sherbrooke.

STATIONERY, office
Harris Lithographing Co., Toronto.

STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland,

STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.

STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.

STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
*Burlington Steel Co., Ltd., Hamilton, Ont.

STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited. Hamilton.

STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.

STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.

STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.

STEEL DOORS, rolling
*The A. B. Ormsby Co., Limited, Toronto.

STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

STEEL PLATE WORK
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Toronto Iron Works, Ltd., Toronto.

STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.

STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.

STEEL SHELVING
*Dennis Wire & Iron Works Co., London.

STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.

STEEL WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.

STELLITE
*Deloro Smelting & Refining Co., Ltd., Deloro and Toronto.

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd. Ottawa, Ont.

STEPS, for buggies and carriages
*McKinnon Industries Limited, St. Catharines, Ont.

STEREOTYPING
Central Press Agency, Toronto

STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

STONE
The Hagersville Contracting Co., Hagersville, Ont.

STONEWARE
*Jas. W. Foley & Co., St. John, N.B.

STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.

STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.

STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.

*For Display Advertisement see Index, Pages 1-2

STOVES AND RANGES
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.
STRAWS, paper drinking
Fletcher Mfg. Co., Ltd., Toronto.
STREET LIGHTING FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.
STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.
SURFACERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
SWITCH STANDS
Canadian Ramapo Iron Works, Ltd. Niagara Falls, Ont.
TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton,
TANKS
*Toronto Iron Works, Ltd., Toronto
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.
TANKS, steel storage
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.
TAPS
*Butterfield & Co., Rock Island, P.Q
*Pratt & Whitney Co., Dundas.
TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.
TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
TENTS
Turner, J. J., & Sons, Peterboro,
*Scythes & Co., Ltd., Toronto.
TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B
TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.
TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited Lachute Mills P.Q.
THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland
TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TIE PLATES, for railways
*McKinnon Industries Limited, St. Catharines, Ont.
TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TIME RECORDERS
*International Business Machines, Limited, Toronto.
TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton.
TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton.
TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.
TRACTORS, kerosene and gasoline
*Gilson Manufacturing Co., Ltd., Guelph.
TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.
TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited. St. Catharines.
TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.
TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.
TROLLEYS
*Richard-Wilcox Canadian Co., Limited. London, Ont.
*Northern Crane Works, Limited, Walkerville.
TRUCKS
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton
*Northern Crane Works, Limited, Walkerville.
TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.
TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.
TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.
TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.
TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.
TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
TUBING, Fibre
*Beveridge Paper Co., Limited Montreal.
TUBING, gold and silver
Canadian Seamless Wire Co., Toronto
TUBS, Ice cream
Fletcher Mfg. Co., Ltd., Toronto.
TUMBLERS, foundry
*Northern Crane Works, Limited Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited St Catharines
TURBINE PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
TURPENTINE
*Brown Corporation, La Tuque, Que.
TWEEDS
Rosamond Woollen Co., Almonte, Ont.
TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.
TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.
TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd., Walkerville, Ont
UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.
UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
UNIONS
*Dart Union Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.
VALVES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
T. McAvity & Sons, Ltd., St. John, N.B.
*Penberthy Injector Co., Ltd., Windsor.
VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Mueller Mfg. Co., Ltd., Sarnia.
*Penberthy Injector Co., Ltd., Windsor.
*United Brass & Lead, Ltd., Toronto
James Morrison Brass Mfg. Co., Limited, Toronto.
VALVES, pressure reducing
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, regrinding globe, angle, cross checks, swing checks.
*Mueller Mfg. Co., Ltd., Sarnia.
Penberthy Injector Co., Ltd., Windsor, Ont.
VALVES, regulating
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.
VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt
J. & J. Taylor, Ltd., Toronto.
VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.
VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.
VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa
VOLTMETERS AND AMMETERS
*Crouse-Hinds Co., Ltd., Toronto.
WAGONS
Tudhope Anderson Co., Ltd., Orillia.
WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.
WASHERS
*The Steel Company of Canada, Limited Hamilton.
*United Brass & Lead, Ltd., Toronto
WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.
WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.
WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.
WASTES, wool and cotton
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited, Montreal.
*The Barrett Co., Ltd., Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton, Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont.
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEEL FLANGES
*McKinnon Industries Limited, St. Catharines, Ont.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal, Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.
WHEELS, water (impulse type)
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia, Ont.
WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHIPSOCKETS
*McKinnon Industries Limited, St. Catharines, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont
WHITE LEAD
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WINDOW SHADES
Daly & Morin, Montreal, Que.
WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.
WIRE BALE TIES
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.
WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, insulated electric
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

*For Display Advertisement see Index, Pages 1-2

WIRE, weatherproof
*Northern Electric Co., Limited Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co of Canada, Ltd., Hamilton, Ont.

WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd Hamilton.

WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co. Ltd., Toronto.

WIRING DEVICES
*Crouse-Hinds Co., Ltd., Toronto.

WOOD
Standard Fuel Co., Toronto.

WOOD BORERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

WOOD PRINTERS
Barchard & Co., Ltd., Toronto.

WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi Chicoutimi, Que.

WOOD SHOP, general work
*Canadian Rumely Co., Limited, Toronto, Ont.

WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd Galt, Ont.

WOOD STAVE PIPE
T. A. Morrison & Co., Montreal.

WOOL
*H. V. Andrews, Toronto.

WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte Ont.

WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada, Ltd., Niagara Falls, Ont

WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.

WRENCHES
*McKinnon Industries Limited, St. Catharines, Ont.

WROUGHT IRON PIPE
*The Steel Company of Canada Ltd., Hamilton.

WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.

YARNS, cotton
Hamilton Cotton Co., Hamilton, Ont.

ZINC, electrical
*The Canada Metal Co., Toronto

* For Display Advertisements see Index, Pages 1-2

WHEN YOU NEED

SPECIAL MACHINERY

Our skilled organization and first-class equipment can save you money on the highest grade product.

May we have the privilege of quoting on your requirements?

Globe Engineering Co., Ltd. - HAMILTON, CANADA

T H-E

Now for Peace Work

After the stress and strain of war-time work every electrical installation of any kind—from the largest to the smallest—will be the better for expert inspection and overhauling if need be. If you have no electrician on your staff, get in touch with your electrical contractor for this important work before the rush comes.

As for lamps—good ones—Hydro Quality—not only save current but they speed up production, because everyone works better with the proper light. See us about them now.

Toronto Hydro-Electric System

226 Yonge St. Branch—Gerrard and Carlaw

Industrial Canada

Shall We Wait and See?

is the title of a most interesting advertisement we wrote and published for our clients, The Ontario Motor Car Co., Limited, Sales Agents for Packard Motor Cars and Packard Motor Trucks.

This advertisement excited so much interest, and our clients received so many requests for a copy of it, that we have reproduced it for general distribution.

We will gladly send you a copy on request.

J. J. Gibbons
Limited
Advertising Agents

Montreal Toronto Winnipeg

Published by the
CANADIAN MANUFACTURERS ASSOCIATION.
HEAD OFFICE TORONTO ONT.

CORALOX

(AN ELECTRIC FURNACE CORUNDUM)

REDUCES POLISHING COSTS

FREE TRIAL SAMPLE FURNISHED ON REQUEST

Made by

D. A. BREBNER LIMITED - Hamilton, Ont.

Sole Distributors for Canada

THE CANADIAN HANSON & VAN WINKLE COMPANY, Limited

TORONTO, ONTARIO

YOUR INCREASED CAPACITY may mean new Buildings or Alterations to present Buildings.

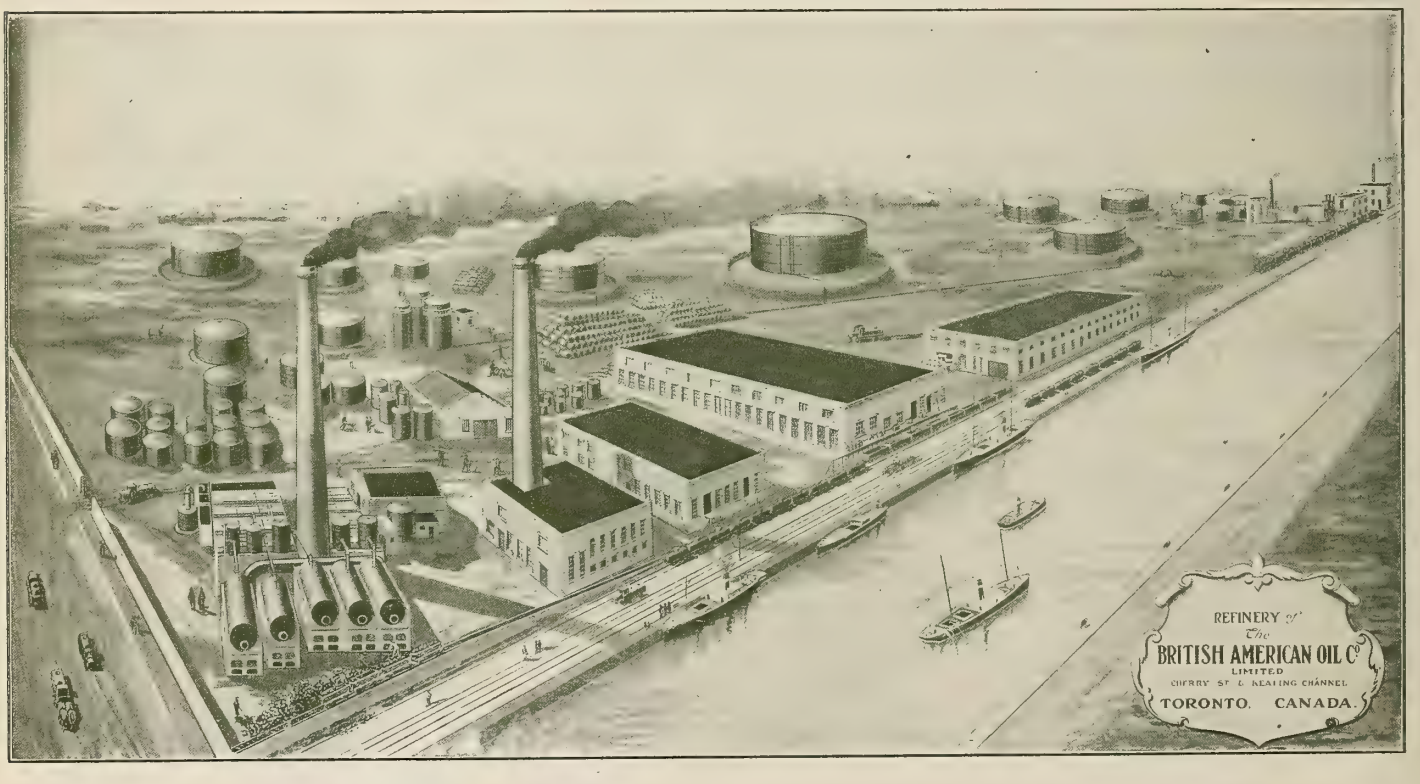
OUR ORGANIZATION and system of Personal Supervision guarantees you satisfaction.

John V. Gray Construction Co. Limited

GENERAL CONTRACTORS

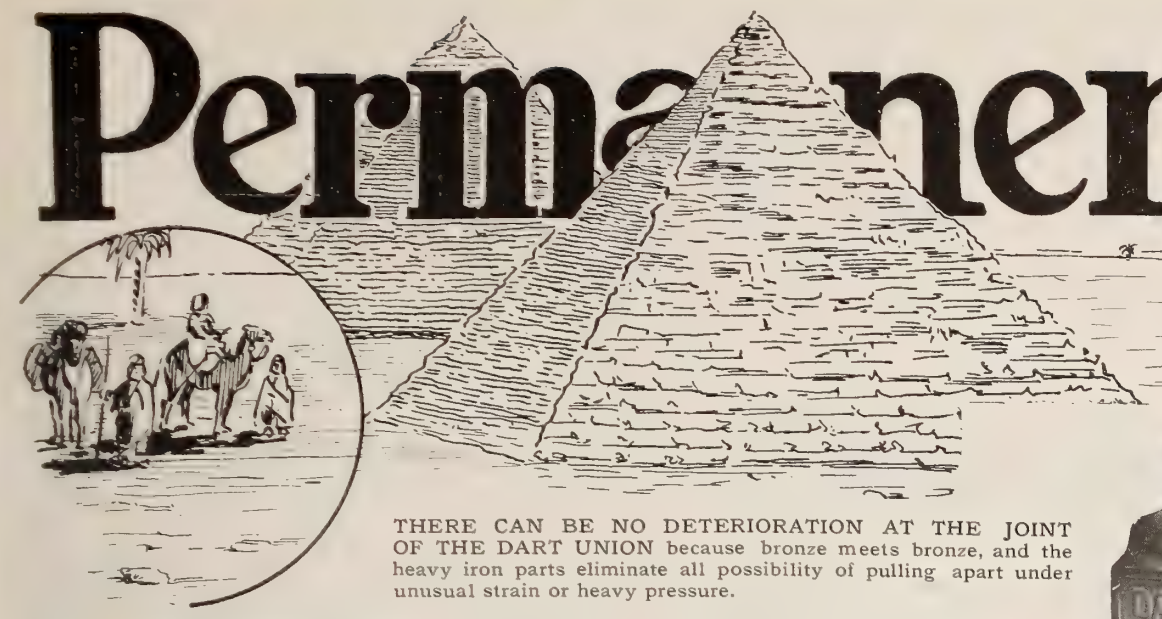
625 Confederation Life Building TORONTO, ONT.

THE BRITISH AMERICAN OIL CO., LIMITED



Head Office: ROYAL BANK BUILDING, TORONTO **Branches: Montreal, Ottawa, London, Windsor, Etc.**

Permanence

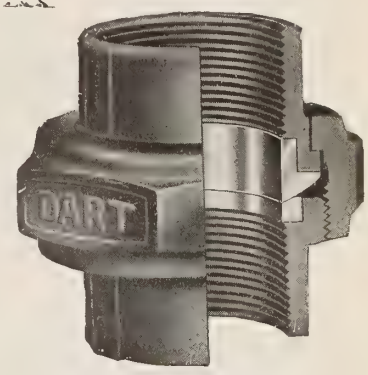


THERE CAN BE NO DETERIORATION AT THE JOINT OF THE DART UNION because bronze meets bronze, and the heavy iron parts eliminate all possibility of pulling apart under unusual strain or heavy pressure.

And besides being a Permanent Coupling the Dart is Much Easier to Use

The Ball-Shaped Joint permits easy and quick connection, whether pipes are in or out of alignment' **Always ask your Jobber for Dart Unions** and you'll make sure of having every job PERMANENTLY RIGHT. The Dart Trade Mark is your guarantee.

Made in Canada by Dart Union Company, Ltd., Toronto



Bronze to Bronze at the Joint

DART UNION PIPE COUPLINGS HAVE BRONZE FACE AND SEAT

Canadian Asbestos Co.

Montreal - Toronto

We carry the most complete stock of Asbestos Goods and Mill Supplies in Canada

Asbestos Paper and Millboard **Asbestos Pipe Covering**
Asbestos Cements **Blackote Rubber Roofing**
Cotton Waste and Oakum

Sole Canadian Agents:

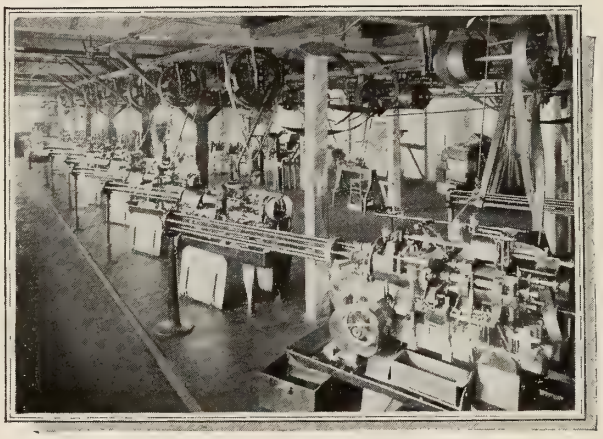
PEERLESS RUBBER MFG. CO.
Rainbow Packing, Etc.

EHRET MAGNESIA MFG. CO.
85% Magnesia Products.

JOSEPH DIXON CRUCIBLE CO.
Crucibles, Graphite-Paint and Plumbago, etc.

ASBESTOS PROTECTED METAL CO.
Corrugated Siding and Roofing.

Stamped Metal Parts and Automatic Screw Machine Products



Sectional view of our Battery of Automatic Screw Machines

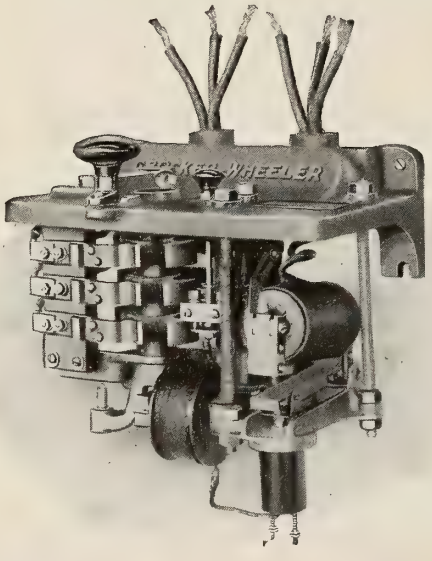
A connoisseur examines a work of art minutely and pays special attention to small details, picking out flaws that might easily be passed unnoticed by the average individual.

Our Stamped Metal Parts and Automatic Screw Machine Products undergo the same severe scrutiny by experts, whose critical judgment allow only the perfect material to go through to our customers.

With superior machinery installed in our modern factory and men who know their job, we are enabled to offer complete service and quote reasonable rates for high grade work.

CARON BROTHERS
CARON BUILDING
233-239 Bleury Street - Montreal

This Switch Protects Your Motors



IT'S BETTER TO PAY A LITTLE FOR PROTECTION THAN A LOT FOR REPAIRS.

CROCKER-WHEELER
TYPE D.O. OIL SWITCH

SHOWN IN PICTURE WITHOUT TANK, IS COMPLETELY OIL IMMERSED, ARRANGED FOR CONDUIT WIRING, HAS NO-VOLTAGE RELEASE ATTACHMENT, OVERLOAD RELAY PROTECTION ON ALL PHASES, AND BOTH OVERLOAD AND TIME LIMIT ADJUSTMENT.

LET US SEND YOU PARTICULARS.

THE CANADIAN
CROCKER - WHEELER COMPANY
LIMITED

Head Office and Works: ST. CATHARINES

Manufacturers and Electrical Engineers

District Offices: TORONTO and MONTREAL

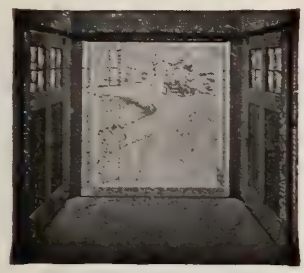


BULLDOG STEEL JOIST HANGERS

They never let go! Stronger than malleable. All sizes and styles for all kinds of work. Save space and time in erection.

GARAGE DOOR HARDWARE OF ALL KINDS FOR ANY PURPOSE

Angle Doors, Parallel Doors, etc. Special jobs receive the prompt attention of our engineering department. Let us know your requirements.





Put Your Trucks on The Ceiling!

The Modern Method of Factory Transportation

A Richards-Wilcox Carrier System—either I-Beam or Trolley—will pay for itself in one year on actual pay-roll saving, not to mention the increased efficiency. Occupies no floor space. Always ready for use. Operates easily, one man can handle 2,500 lbs. Trolley carriers made in sixteen styles and sizes for loads up to 2,500 lbs. For heavier loads use I-Beam Equipment.

Catalogs Upon Request

Richards-Wilcox Canadian Co. Ltd.

AURORA BOSTON NEW YORK CHICAGO — London Ontario — PHILADELPHIA MINNEAPOLIS SAN. FRANCISCO ST. LOUIS

"A hanger for any door that slides"

"R-W" TROLLEYS ARE BEST FOR ALL SLIDING DOORS



Specified by leading architects and engineers throughout Canada and the United States. "A hanger for any door that slides."

FIRE DOORS AND FIRE DOOR HARDWARE WITH UNDERWRITERS' LABEL

All styles, single or double, sliding or swinging. A fire door with labeled hardware is the surest way to prevent fire from spreading.



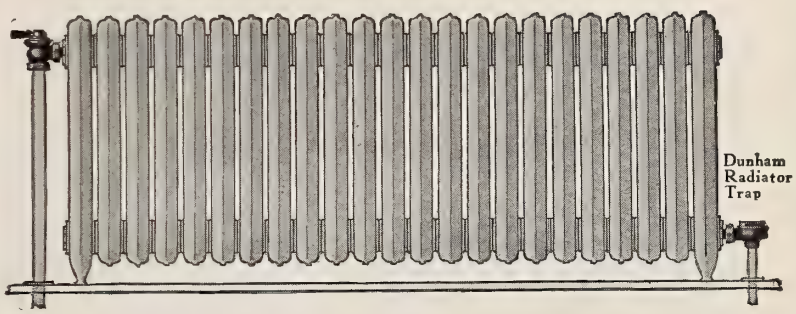
HEATING SERVICE THAT BOOSTS THE EFFICIENCY CURVE

Noise in a steam heating system indicates inefficiency; so do leaky valves and partly-hot radiators. No matter how good the boiler and radiators may be, they cannot do good work unless the steam circulates properly through the entire system.

By eliminating heat-waste — whatever the cause—Dunham Heating Service contributes to the efficiency that must be obtained for profitable peace-time production.

Thousands of industrial plants, office and government buildings have Dunham Heating Service which is recommended by leading architects everywhere.

Dunham Packless Radiator Valve



The Dunham Radiator Trap automatically permits the discharge of air and water—keeps in the steam. The Dunham Radiator Valve is really packless—cannot leak.

Write for complete details of Dunham Heating Service which covers the planning and installation inspection of heating systems that give satisfaction.

The DUNHAM HEATING SERVICE

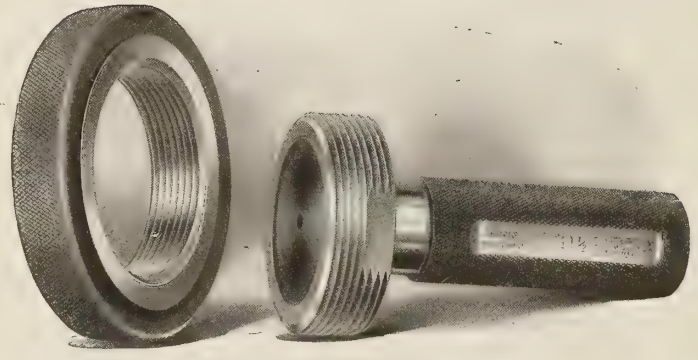
C. A. DUNHAM CO., LTD., TORONTO, ONTARIO

Halifax Montreal Ottawa Winnipeg Vancouver Calgary

SMALL TOOLS

MILLING CUTTERS

In High Speed or Carbon Steel



Plain Side Convex
Concave Angular
and
Special Forms

Special Inserted
Blade Cutters

Our tools are manufactured from the best materials procurable, by skilled workmen with most modern equipment.

QUALITY GUARANTEED

Prompt service is assured at our nearest store, where P. & W. Small Tools are stocked for immediate delivery.

Write for Our No. 9 Catalogue

PRATT & WHITNEY CO.
of Canada, Limited
Dundas - Ontario

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	B.C. Equipment Co.

BERTRAM MACHINE TOOLS

For Structural, Bridge and Shipbuilding Plants

Modern in design and built for heavy service, our line embraces a varied equipment of Punches, Shears, Bending and Straightening Rolls, Coping Machines, Rotary and Plate Planers.

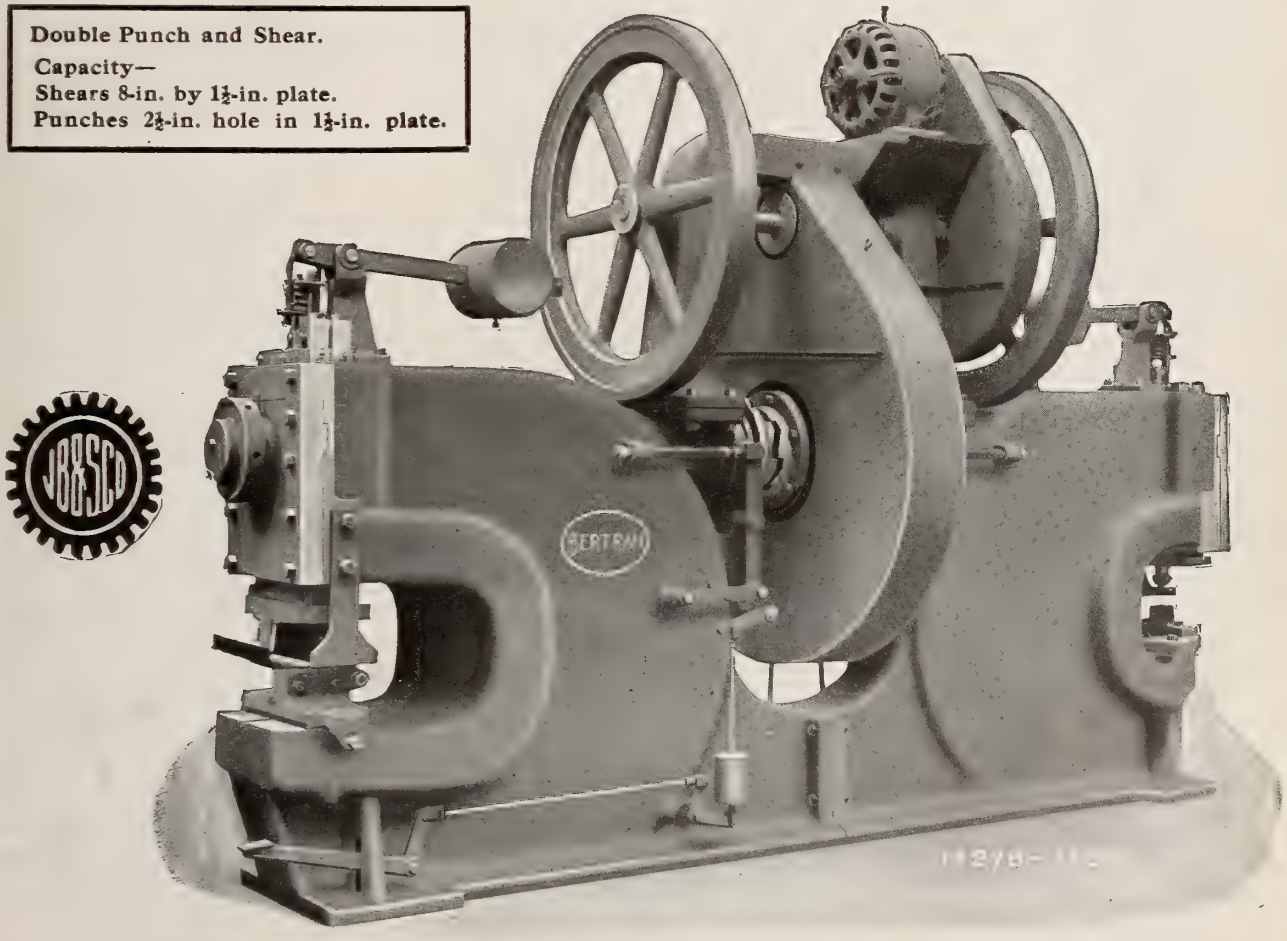
The assistance and advice of our engineers are yours for the asking.

THE JOHN BERTRAM & SONS CO., Limited

Dundas - Ontario - Canada

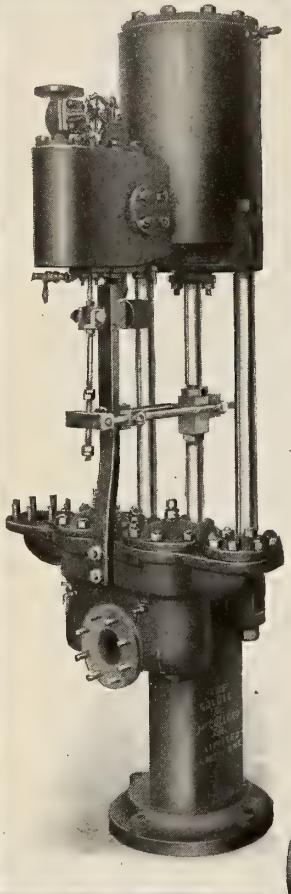
MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	609 Bank of Ottawa Bldg.

Double Punch and Shear.
Capacity—
Shears 8-in. by 1½-in. plate.
Punches 2½-in. hole in 1½-in. plate.



OUR MARINE WAR RECORD

SIXTEEN MONTHS G M C AUG., 1917 to NOV., 1918.

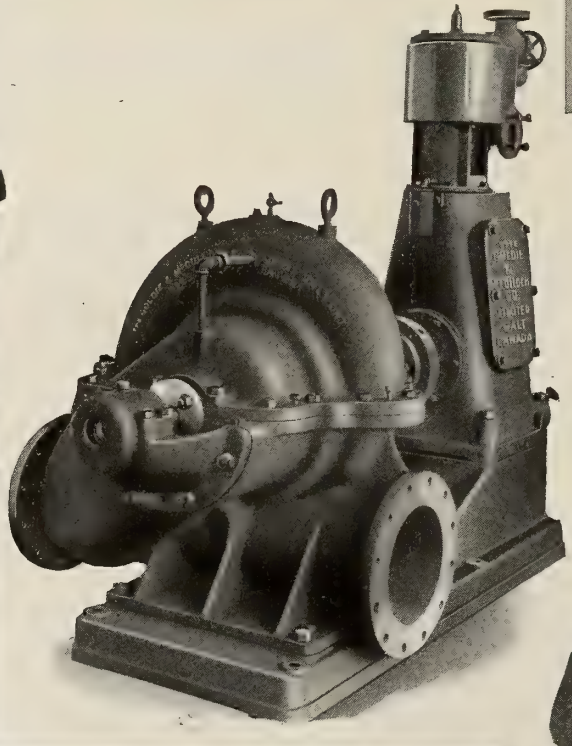


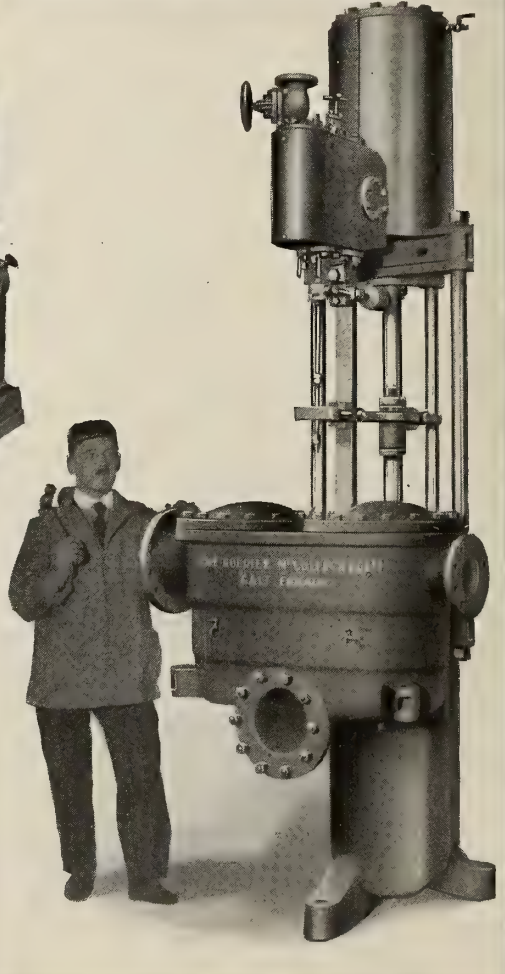
Marine Boiler Feed Pumps

12 of these, as illustrated in upper insert, supplied for ships building for the Dominion Government and others, with a number more under construction.

Rees' RoTURBo Centrifugal Pumps

12 of these Pumps, illustrated in centre insert, supplied for ships building for the Dominion Government and others, with a further number under construction for both marine and land purposes.





Bilge and Ballast Pumps

6 of these Pumps, as illustrated in lower insert, have been supplied for ships building for the Dominion Government, with others under construction.

We invite inquiries in connection with anything relating to Stationary or Marine Power Equipment.

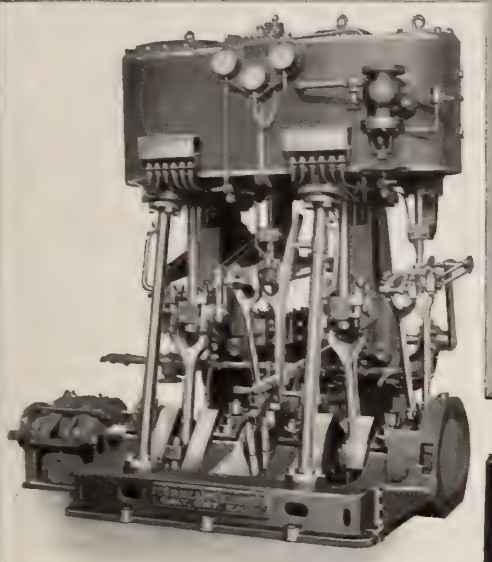
The
GOLDIE & McCULLOCH
Co., Limited

GALT, ONT. - CANADA

TORONTO OFFICE: 1101-2 TRADERS BANK BUILDING
WESTERN BRANCH: 248 McDERMOTT AVE., WINNIPEG, MAN.

OUR MARINE WAR RECORD

SIXTEEN MONTHS G.M.C. AUG., 1917 to NOV., 1918.



Compound Marine Engines

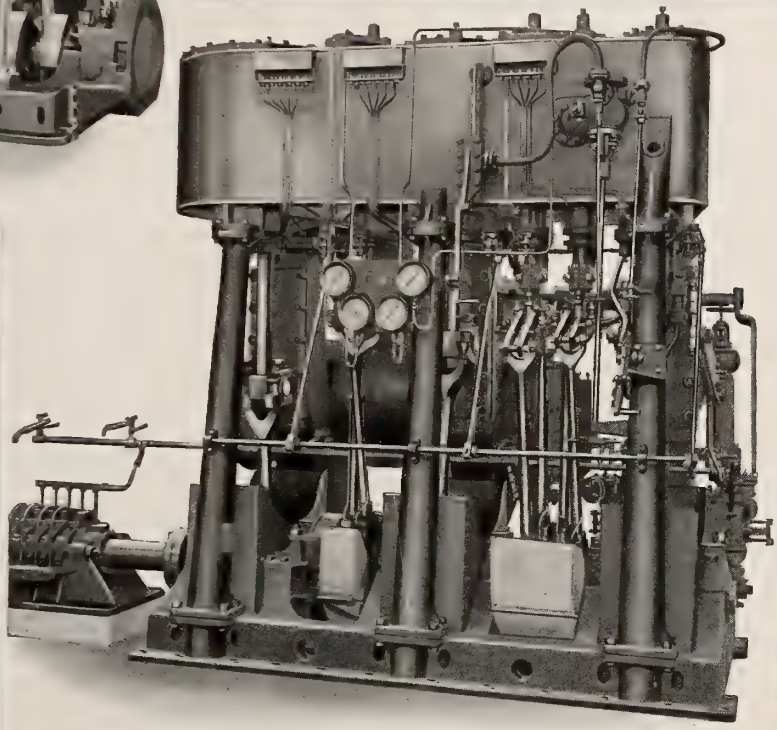
12 x 24 x 16

40 of these engines illustrated in upper insert supplied to the British Admiralty in 13 weeks, complete with condensers, pumps, tail and intermediate shafting, stern tubes and propellers. Fourteen more under construction.

Triple Expansion Marine Engines

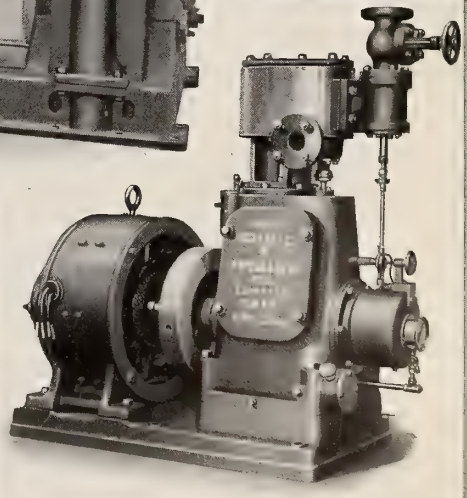
12¾ x 21½ x 35 x 24

14 of these Engines in centre insert supplied to the British Admiralty and the French Government, including a number of condensers, shafts, stern tubes and propellers.



Ships' Lighting Sets

Upwards of 260 of these engines illustrated in the lower insert, supplied to the British Admiralty, Imperial Munitions Board, United States Emergency Fleet Corporation, Canadian Vickers, Naval Construction Works and many others, for use as motive power for Ships' Lighting Sets, Forced Draft Installations and Centrifugal Pumps.



Side Lights

In addition to the above many hundreds of Ships' Side Lights have been supplied and nearly 100 Tail Shafts, some of them weighing upwards of five tons.

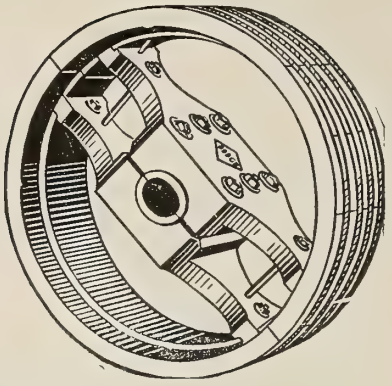
The

GOLDIE & McCULLOCH

Co., Limited

GALT, ONT. - CANADA

TORONTO OFFICE: 1101-2 TRADERS BANK BUILDING
WESTERN BRANCH: 248 McDERMOTT AVE., WINNIPEG, MAN.



Gold Watches and Wood-Split Pulleys

Two men were discussing comparative costs and efficiency of Dodge Wood-Split Pulleys---as against Metal Pulleys.

Said one, "If it is true that a Dodge Wood-Split Pulley will deliver more power at a smaller cost than a metal pulley, and if it also costs less to buy, why should any firm equip with metal pulleys."

The reason is simple. This is the Steel Age. Some men feel that steel must necessarily be better than wood---or men have been heard to say, "steel looks better." These men have never investigated the relative merits of wood or metal pulleys.

The ownership of a gold watch doesn't imply the possession of a perfect timepiece---but, of course, it looks better than a silver or gunmetal-cased watch. So people who buy a gold watch pay more just for looks.

We have no objection to good looks, but with coal and every other factory and overhead cost as high as it is, the amount of power saved by using Dodge Wood-Split Pulleys in preference to metal pulleys more than offsets any disadvantage as regards looks.

DODGE

Manufacturing Co., Limited

TORONTO - - ONTARIO

Also 770 St. Paul St. West, Haymarket Square, MONTREAL

CANADA'S LARGEST BUILDERS OF TRANSMISSION MACHINERY

" QUALITY FIRST "



An "Urban" style, 5-Car Garage, 50 x 20 ft. recently completed for the National Iron Corporation, Cherry Street, Toronto

A Garage at your Plant ?

Perhaps you have felt the need of one—certainly you would appreciate its convenience. We have seven different styles, sizes from 10 x 14 ft. up, capable of variations to any needs, all completely Metal clad. Our Buildings are sturdy, efficient and attractive in appearance, worthy of a place in the best surroundings. We contract for erection complete, in or near Toronto, or furnish plans and materials for work at a distance. Booklet on request, price on receipt of size required.

For any kind of light construction Buildings let us show what we can do for you.

Corrugated Iron

Deeply, uniformly Corrugated Sheets which will make durable and weather-tight Roofing or Siding for your buildings. We carry gauges 16 to 28 inclusive, Galvanized, Painted or Black, straight or curved, all standard lengths up to 10 feet.

We can serve you promptly and at favorable prices for this product.

Ventilators

The "Halitus," a stationary, tubular, Sheet Metal Ventilator that is daily proving its worth on hundreds of Factories, Foundries, Railway Shops, etc. Adequate ventilation is to-day recognized as an absolute essential to maximum efficiency in Industrial Plants.

Booklet and Price List on request.

Other Lines :

Metallic Shingles
Metallic Tiles
Metallic Sidings
Metallic Ceilings
Metallic Lath
Metallic Cornices
Metallic Skylights
Portable Granaries
Eavetrough
Conductor Pipe
Weathervanes
Tanks
Silo Roofs
Special Sheet Metal Work

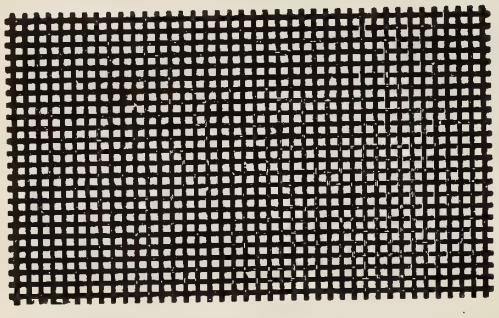
The Metallic Roofing Co., Limited

MANUFACTURERS

Toronto and Winnipeg

GREENING'S

Wire Cloth



Wire Screening

All grades of Wire Cloth, Double Crimped.

Screening Accuracy Guaranteed.

Made of Steel, Copper or Brass.

Galvanized and Tinned Cloth.

Perforated Metals

Wire Rope

MANUFACTURED BY

THE B. GREENING WIRE CO., Limited

HAMILTON, ONT. : : MONTREAL, QUE.

Quality



Service

FOR COOL BEARINGS

We Manufacture:

Phosphor Bronze Tail Shaft Liners, Pump Liners, Stuffing Boxes, Stern Tube Bushings, and Brass Castings of every description.

INQUIRIES SOLICITED

Tallman Brass & Metal Limited

HAMILTON, ONT.

CANADIAN FURNACE CO.

LIMITED

PORT COLBORNE, ONT.

Manufacturers of Pig Iron

BRAND "VICTORIA"

"VICTORIA" FOUNDRY IRON

Strong—Soft—Neutral

"VICTORIA" MALLEABLE IRON

Furnished to all Standard Analyses

SOLE SALES AGENTS:

M. A. HANNA & CO.

Cleveland, Ohio

BUFFALO, N.Y. PITTSBURG, PA. DETROIT, MICH.

TORONTO, ONT.

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Head Office, Toronto

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The General Sales Offices of Canadian Allis-Chalmers, Limited, are in the Head Office Building, corner of King and Simcoe Streets, Toronto, and District Sales Offices, with competent staffs of sales engineers, are maintained at the following places:

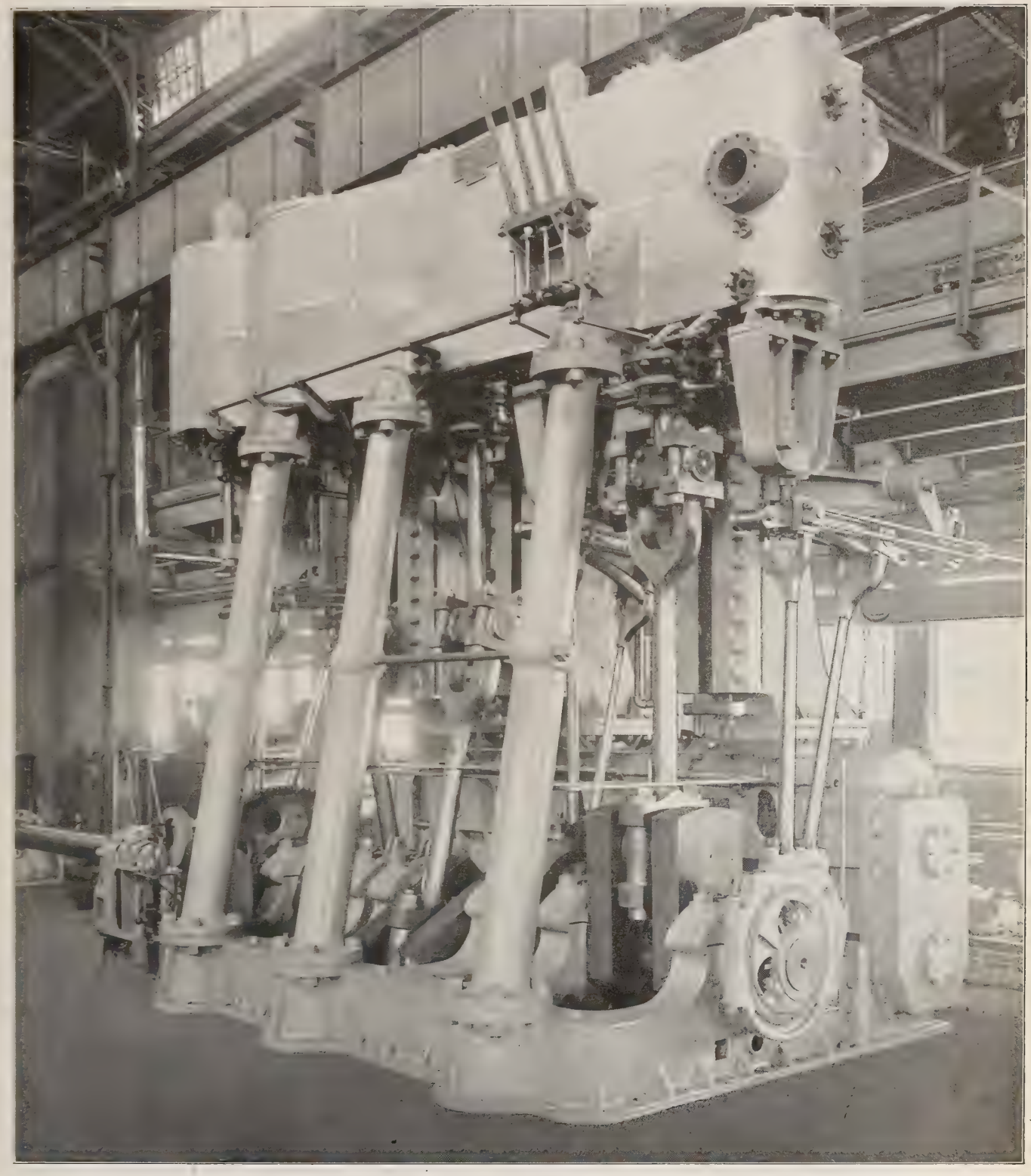
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If fifty years of specializing and progressive experience in the manufacture of one thing tends to quality and efficiency, then the "Famous Five Files" are of the best quality and the most efficient.

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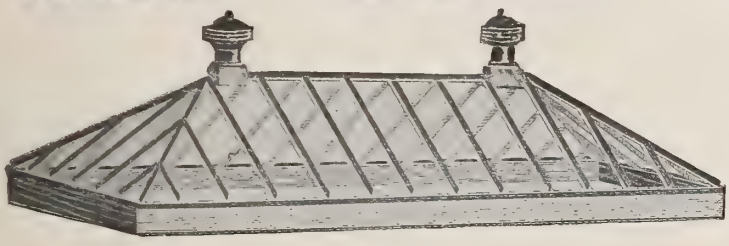
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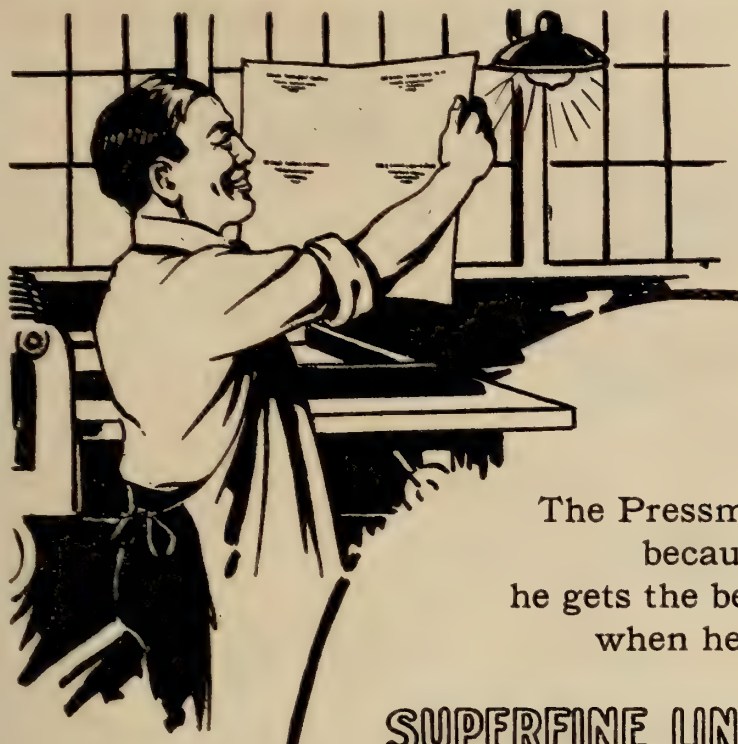
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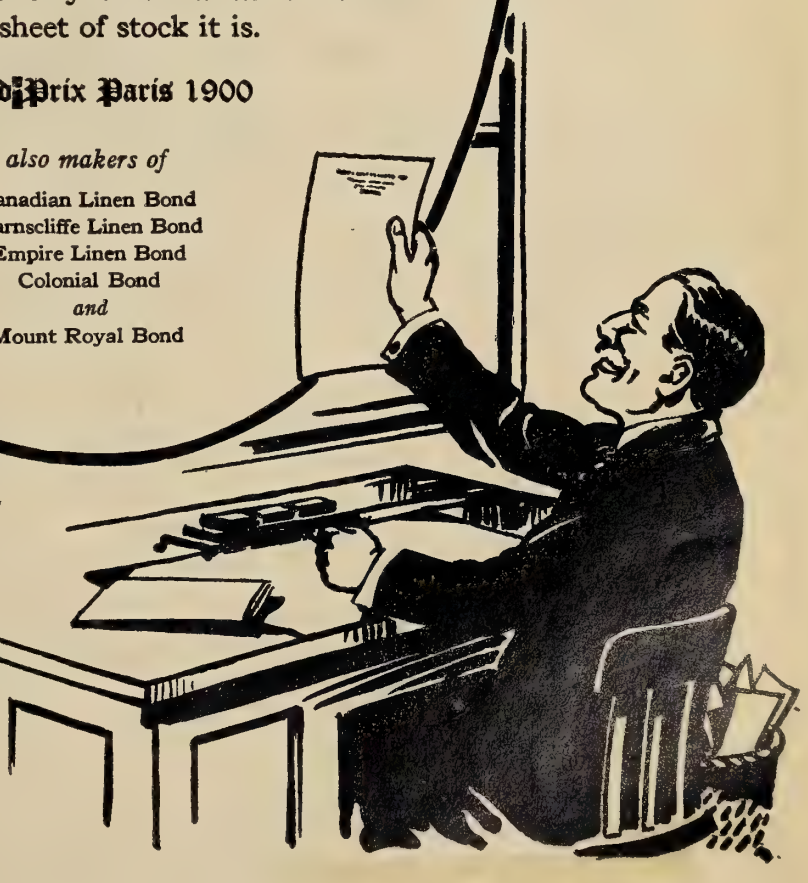
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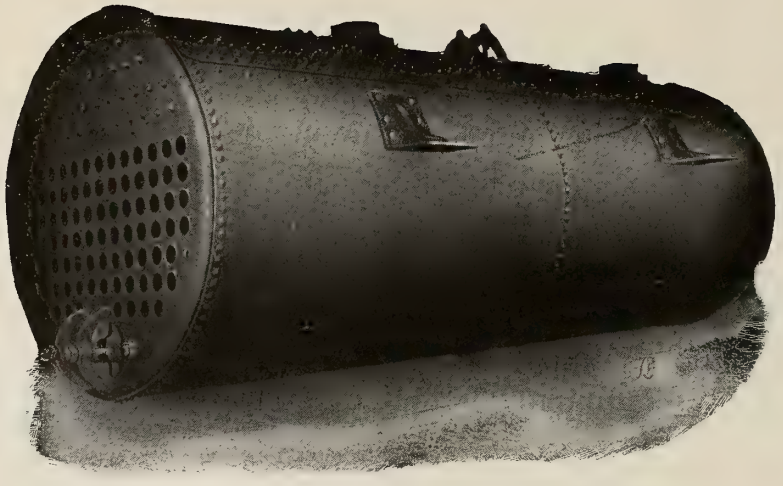
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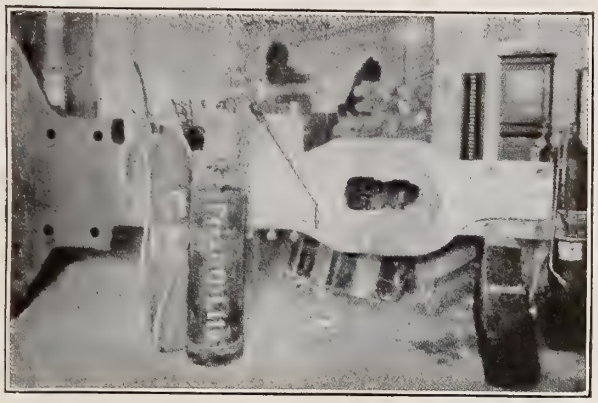
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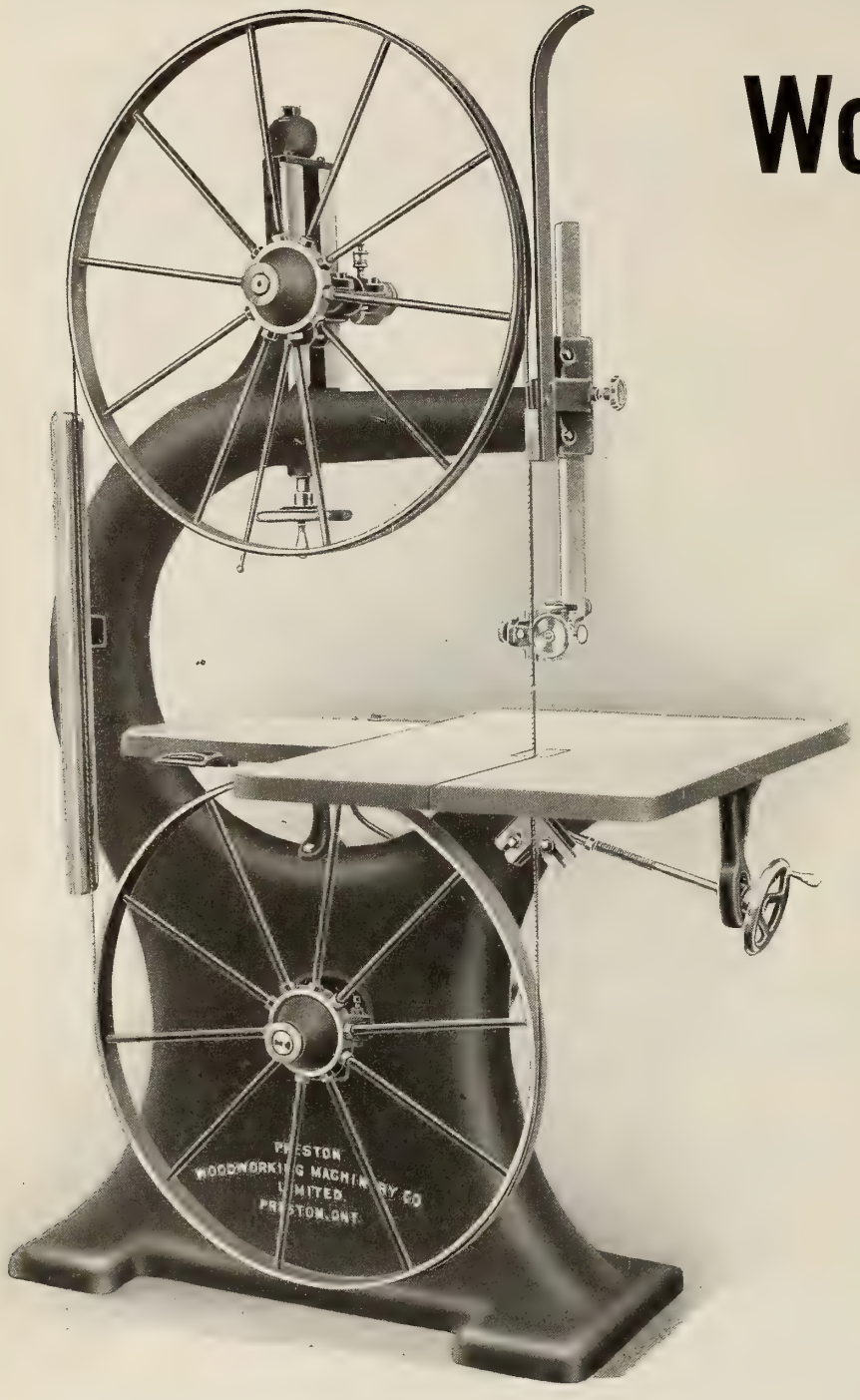


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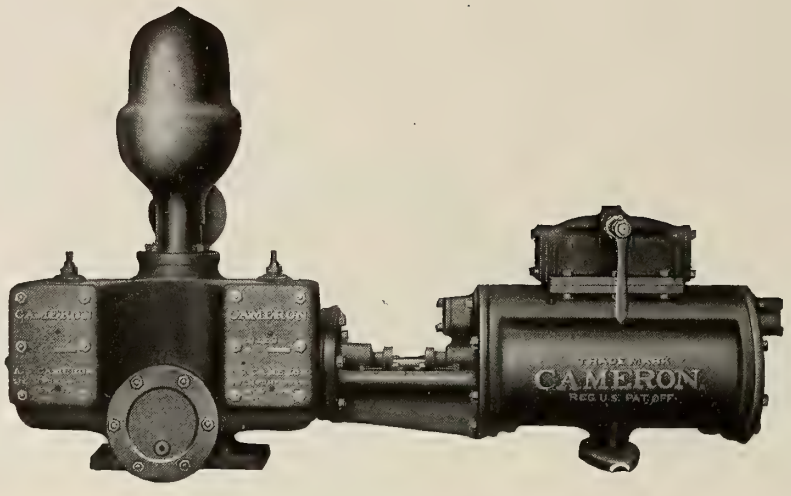
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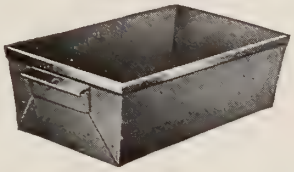
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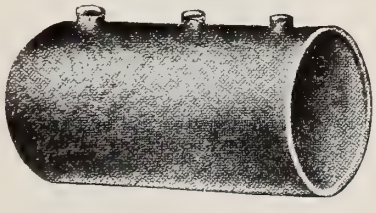
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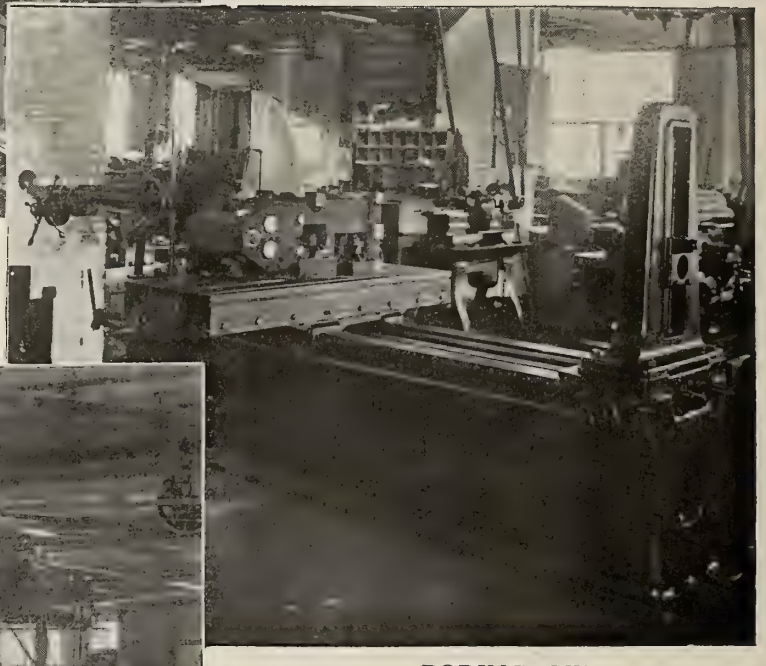
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The Chapman Double Ball Bearing will save this waste and turn it into productive energy.

They will also reduce your oiling and attention to a minimum.

They fit any adjustable hanger and the change can be made with but little delay to you.

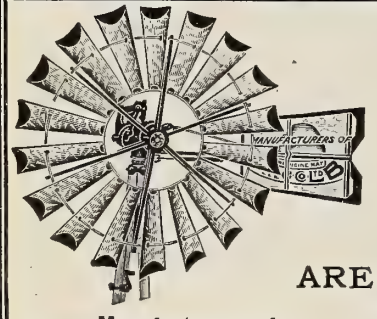


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We also manufacture Annular and Thrust Bearings for automobiles and all classes of machinery

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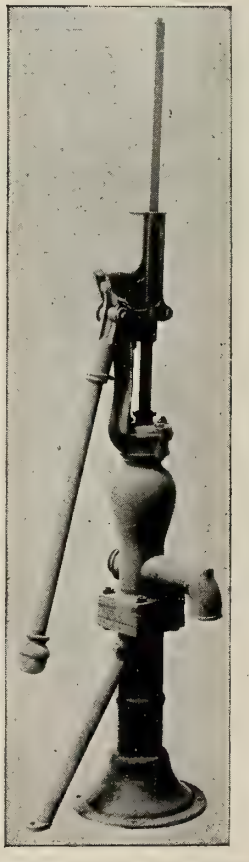
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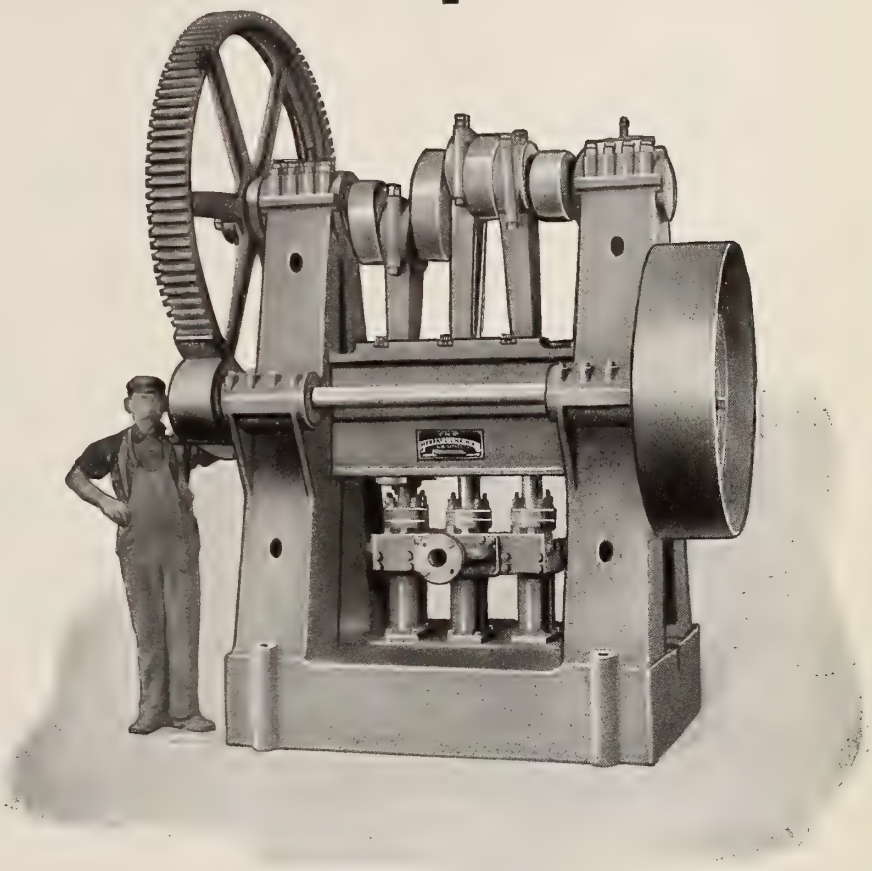
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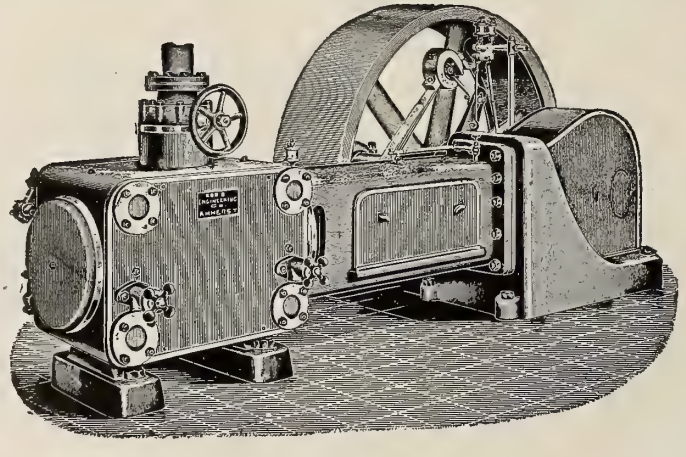
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WINNIPEG and CALGARY

It takes more than Capital, more than Determination, more than Aggressiveness, more than Advertising to make a product leader of its kind.

All these aids, powerful as they are, would be unavailing to achieve such a position unless the product possessed superior merit.

SUPERIOR MERIT ALONE has placed

HARRIS HEAVY PRESSURE
IN ITS POSITION OF
SUPREMACY

It is known as the Babbitt Metal without a fault and for general machinery bearings it gives excellent service.

Order a box from our nearest factory.

WE MANUFACTURE

BABBITT METALS. SOLDER.
LEAD PIPE. SHEET LEAD.

and all White Metal Alloys, and are the

LARGEST EXCLUSIVE METAL DEALERS IN THE DOMINION

Immense stock of Ingot Metals for prompt shipment.

The Canada Metal Co., Ltd.

Head Office:
TORONTO

Branch Factories:
HAMILTON, WINNIPEG,
MONTREAL, VANCOUVER

Quick, Accurate Weights Over Toledo Scales



TOLEDO No. 605
Compounding, checking and packing scale.
Maximum capacity 4 pounds.



TOLEDO No. 682
Factory checking, packing and compounding scale.
Maximum capacity 115 pounds.

IN your receiving or shipping room, in your compounding department, somewhere in the manufacture or handling of your product, speedy, accurate scales would save you time and money.

Toledo Scales are speedy because they are automatic in operation.

Toledo Scales are accurate because they are carefully built on the correct gravity principle.

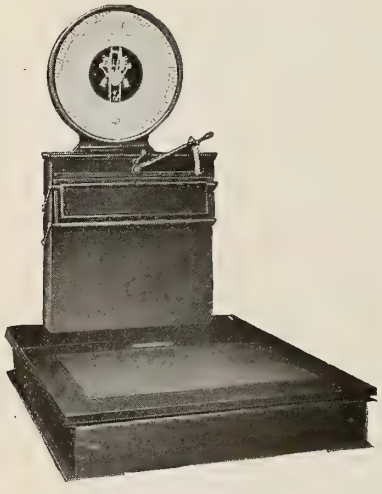
Toledo Scales are durable because they are built under a system of rigid inspection by highly skilled workmen, from the finest materials obtainable.

Toledo Scales are built for almost every conceivable use, in capacities ranging from a few ounces to many tons.

Toledo Scales are built in Canada by Canadian workmen.



TOLEDO No. 821
Portable scale, with a maximum capacity of 1,500 pounds.
May be equipped with many different combination of charts and beams, and with either short or long column as shown.



TOLEDO No. 1541
All steel, self-contained unit weight scale, for use in factories, warehouses, wherever accurate weights are desired on large drafts.
Maximum capacity 6,500 pounds.

Toledo Scale Company

WINDSOR, ONT.

BRANCH OFFICES AND SERVICE STATIONS THROUGHOUT THE DOMINION



TOLEDO No. 921
All steel self-contained dormant scale. May be equipped with many different charts and beam capacities.
Maximum capacity ranges up to 3,800 pounds.

More Than a Million Users
All Over the World

THERE'S A REASON

BOWSER
ESTABLISHED 1885
SYSTEMS

CONSERVE	ARE
Time	Leak proof
Labor	Loss proof
Capital	Fire proof
Machinery	Dirt proof
Lives	Deterioration proof
Property	Evaporation proof
Material	

THEY INSURE

Greatest Efficiency — Speed and Economy

A System for Every Requirement

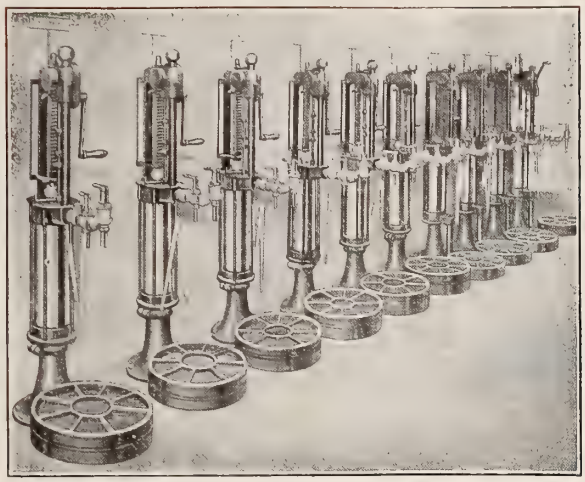


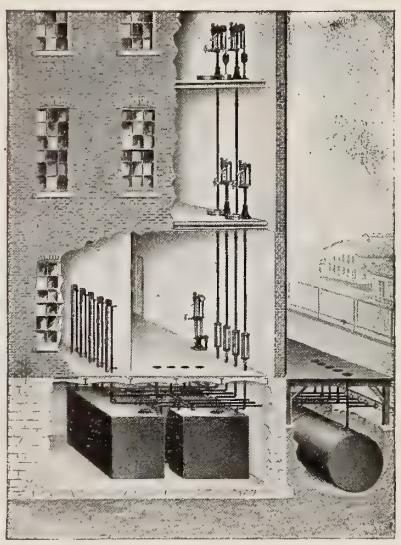
Figure 115

For Paint Oils
Lubricating Oils
Animal and Vegetable Oils and similar liquids
Rectangular Steel Tanks located in basement
Measures one gallon at a stroke
A complete unit for every oil



Figure 103

For Gasoline, Underground Tank, pumps one gallon at a stroke. Most rapid Pump of similar capacity made. Steel Cut Gears and Cog Rack.



Figures 44 and 119

For Kerosene, Gasoline or Lubricating Oils. Underground Tanks or Rectangular Basement Tanks. Specially designed to lift to any vertical height with ease.

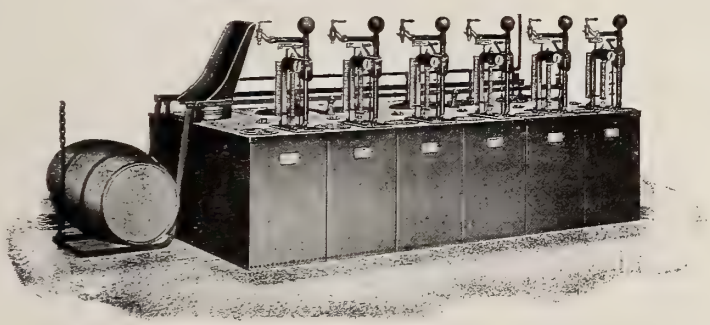


Figure 109

For Paint Oils
Lubricating Oils
Animal and Vegetable Oils

A unit for each kind of oil. Pumps one gallon at a stroke.

(Made in Canada)

S. F. Bowser & Co., Inc.

Toronto - Canada

Sales Offices in All Centres

Representatives Everywhere

W. M. SCOTT

B.A.Sc. (McGill)

Member Engineering Institute of Canada.
Member New England Water Works Association.
Member American Water Works Association.

CONSULTING ENGINEER

WINNIPEG MANITOBA

WATER SUPPLY, SEWERAGE AND SEWAGE DISPOSAL, DRAINAGE WATER POWER, MUNICIPAL AND INDUSTRIAL WORKS, VALUATIONS AND REPORTS. . . .

PUT YOUR LOCOMOTIVE PROBLEM UP TO US—



WE are specialists in building locomotives.

We build all types and sizes, also all kinds of spare and repair parts for locomotives and tenders.

Our experience puts us in position to give you expert advice as to what particular type and size of locomotive is best suited to your needs.

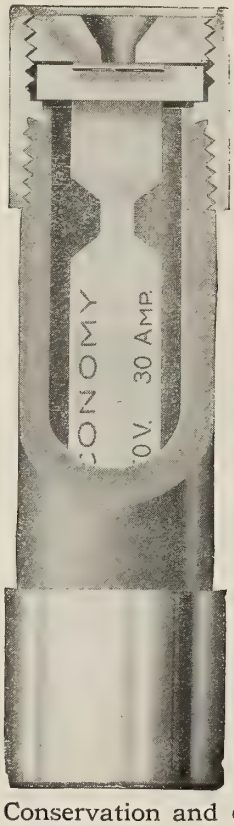
Put your locomotive problem up to us.

MONTREAL LOCOMOTIVE WORKS, LIMITED
DOMINION EXPRESS BUILDING MONTREAL, CANADA

Concluding a Year of Achievement

North America's splendid industrial achievements in the memorable year of 1918 were made possible through the sound judgment displayed in so systematizing production as to conserve needed materials and to effect economies in operating and maintenance.

ECONOMY
Renewable FUSES



have played a noteworthy part by protecting vitally important electrical circuits of the U.S. Navy, the leading steel and powder mills and thousands of representative plants in all branches of industry against the fire and accident hazards of overloads and short circuits. It was due, in part, to their accurate rating and all-round efficiency that the wheels were kept turning with safety.

They have directly saved millions of dollars for their thousands of users because they cut annual fuse maintenance costs 80% as compared with the use of "One-Time" fuses.

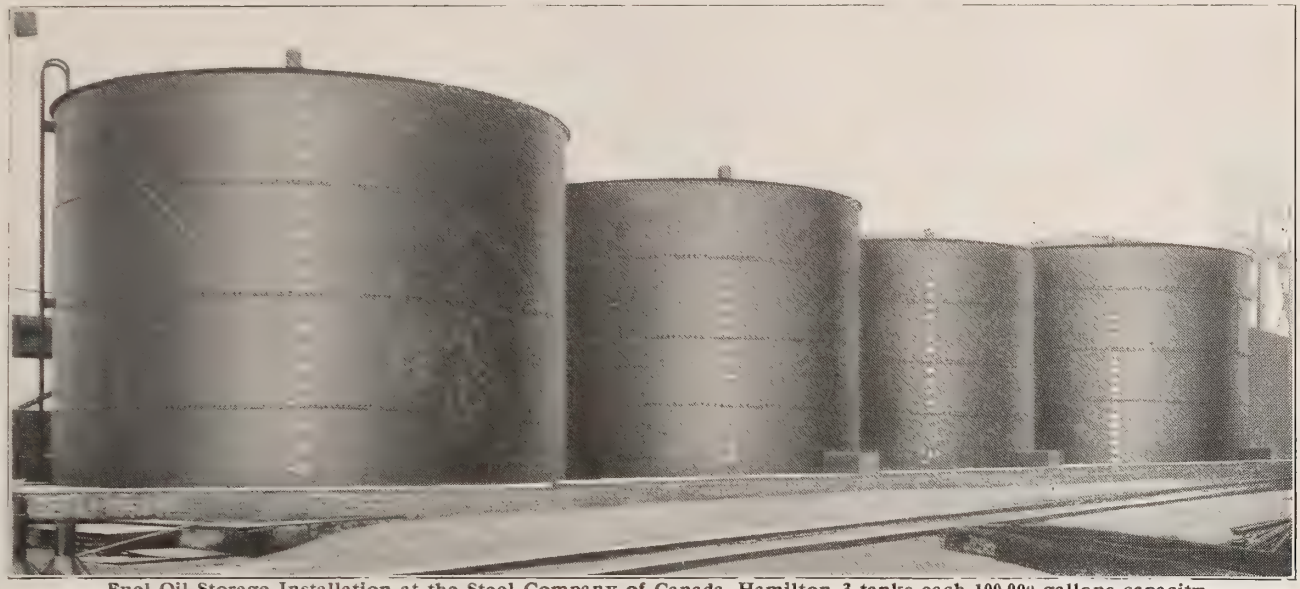
We now face the great reconstruction period. Conservation and economy must be practiced more extensively and constructively than ever before. Economy Fuses are essentials as actors of practical economy and conservation.

WRITE FOR CATALOGUE 40

Economy Fuse & Mfg. Co. of Canada, Limited

Unity Bldg., MONTREAL

Manufacturers in Canada of S. & C. High Potential Fuses—to 150,000 volts.



Fuel Oil Storage Installation at the Steel Company of Canada, Hamilton, 3 tanks each 100,000 gallons capacity, 1 tank 200,000 gallons capacity.

STEEL PLATE CONSTRUCTION

We build riveted steel tanks for every purpose, such as:—

OIL STORAGE, GASOLINE TANKS, AIR RECEIVERS, PNEUMATIC WATER SUPPLY TANKS. SMOKE STACKS, BOILER BREECHING, BINS AND HOPPERS.

Heavy and Light Steel Plate Construction erected anywhere.
Let us quote on your requirements.

THE TORONTO IRON WORKS LIMITED

HEAD OFFICE:
ROYAL BANK BLDG.

TORONTO

WORKS:
CHERRY STREET



Fuel Oil Storage Installation at Dominion Steel Foundries Ltd., Hamilton, 2 tanks each 200,000 gallons capacity, 2 tanks each 100,000 gallons capacity.

Yates



HAMILTON CANADA

Manufacturers of

Sizers and Matchers
Planers and Matchers, and Stickers
Sanders
Open Side Moulders
Band, Rip, and Resaws
Surfaces
Buzz Planers
Shapers
Rip Saws
Glue Jointers

Planers, Matchers and Stickers
Open Side Moulders

These machines cover a great variety of work, Flooring, Siding and every style of Interior Finish.

Sanders

Of all types and sizes, and when the finest finish is required on the most expensive woods and veneers, the "YATES" cannot be excelled.

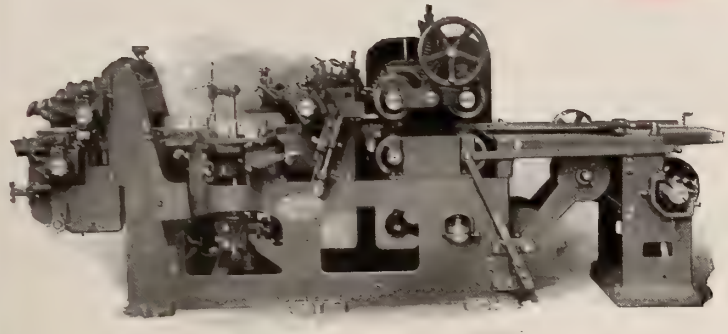
We have the largest factory in Canada devoted exclusively to the manufacture of Woodworking Machinery

"The invariable choice of men who know."

P. B. Yates Machine Co. Ltd.

General Offices: Hamilton, Canada

Yates



Yates Moulder Type No. 111

MOULDERS

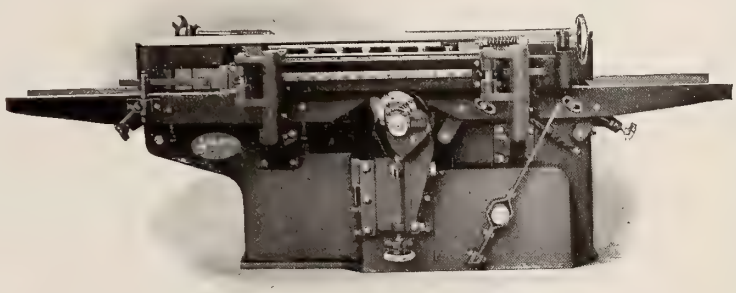
Built in styles to meet every requirement where fine finish and rapid work are desired.

Types C1 - C3 - C4 - 108 and 111.

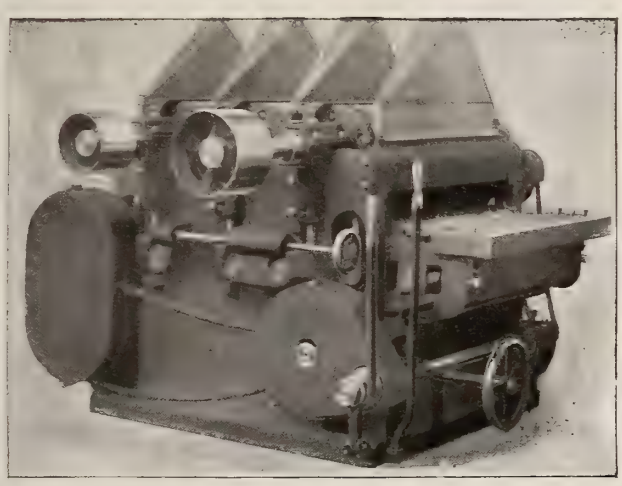
JOINTERS

Power and hand feed. Special machines for high class work.

Types 213 - 199 - G2.



Yates Jointer Type No. 213



Yates Sander Endless Bed Type No. 431

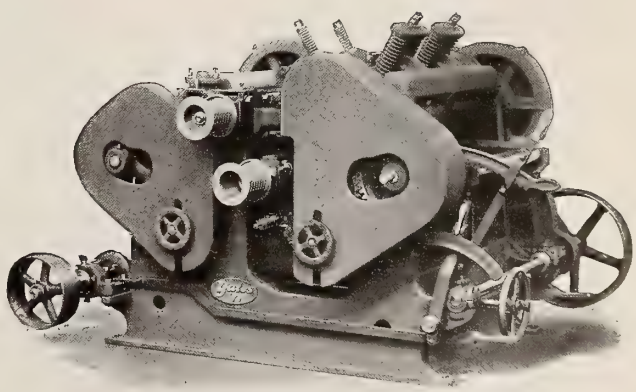
SANDERS

We are the pioneer builders of power sanders and where fine work is required the YATES is always found. Built in various types and sizes, from 31 to 103 inches wide.

Types 401 Roll Feed, 431 Endless Bed, 427 Belt Hand Feed and S1 Edge Sander.

SURFACERS

As roughing and finishing machines for furniture, pianos, sash and doors, or for factories, planing mills, etc., our surfacers are known to stand up under heavy duty and give the best of satisfaction. Types 177 single and double, B2 double, 151 pony, 156 cabinet.



Yates Surfacer Type No. 177

Quality **OPEN HEARTH** Service

BLACK STEEL SHEETS

One Pass Cold Rolled and Box Annealed

THE STEEL COMPANY OF CANADA LIMITED — STELCO

Steel sheets bearing this trade-mark are equal, if not superior, to any produced on this continent.

They are the product of a Canadian mill—and made by Canadian workmen.

Submit specifications covering your requirements—and quotations will be promptly furnished.

THE STEEL COMPANY OF CANADA LIMITED

Hamilton **Montreal**

Purchase in Canada

Quality Service

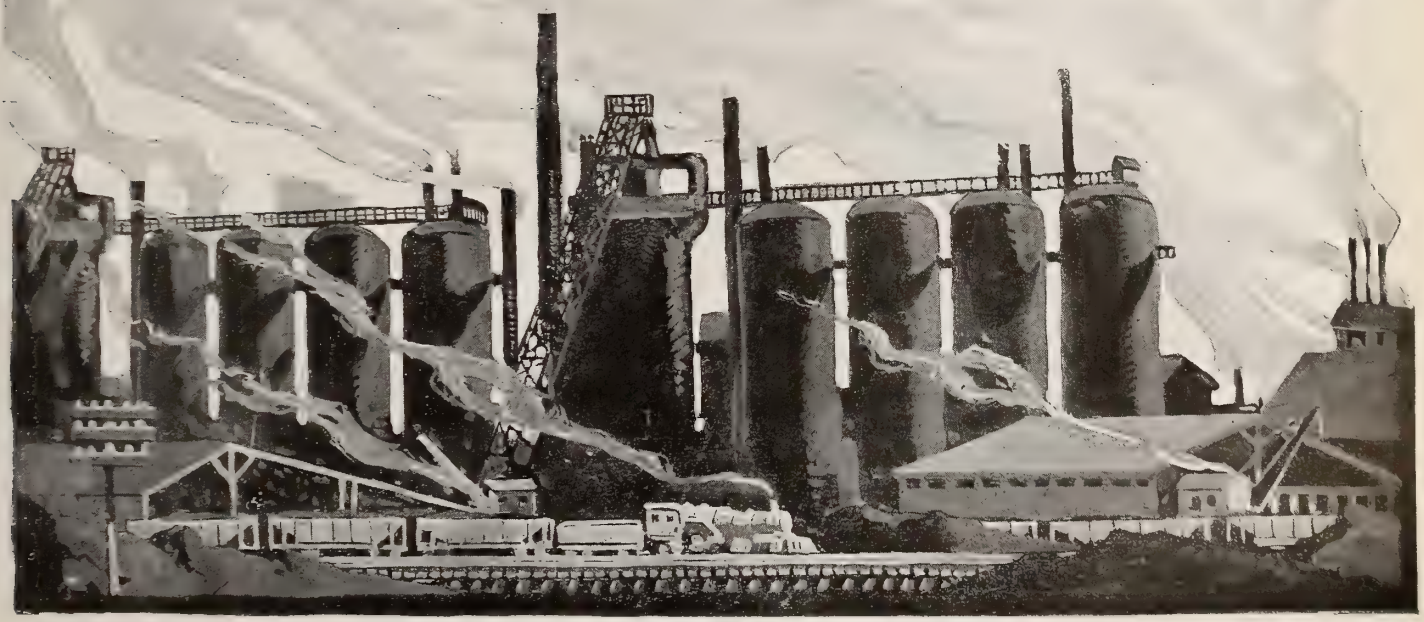
TO UPHOLD THE GLORY we have justly earned—to honor our noble dead—to comfort the wounded, and extend to the men returned the hand of prosperous welcome, we must cast aside all forebodings and face the future with unbounded courage and confidence and, without a shadow of doubt, declare to the World that this Nation, which was so quickly and successfully transformed to a War basis, can be depended upon to revert to Peace conditions with equal success.

THE BUYER AND SELLER must recognize their duty to the Nation and co-operate fully to the end that all products that can be produced in Canada by Canadian Workmen shall not be purchased elsewhere.

OUR DUTY IS PLAIN: Canada with Canadian labor and capital can produce, manufacture and distribute products sufficient to keep the wheels of industry turning to the limit. The song of Prosperity and Happiness should ring out all over the land. Let us sincerely pledge, to the extent of our needs, to purchase materials produced in Canada by Canadian Workmen, and the result of our efforts will return to us the Blessings of a Prosperous and Happy Nation.

THE STEEL COMPANY OF CANADA LIMITED

HAMILTON MONTREAL





This is a Reproduction from an Actual Photograph (not a Visionary Drawing) of the Works of BROWN'S COPPER AND BRASS ROLLING MILLS CO., Limited, at New Toronto, near Toronto, Canada.

Ingots



Copper, Brass, Bronze and Composition

We purchase Copper Bearing Material. All enquiries receive prompt attention.

We make any alloy according to your Formula.

Brown's Copper & Brass Rolling Mills, Limited

NEW TORONTO - - ONTARIO

Near Toronto

COPPER & BRASS BROWN'S QUALITY ROLLING MILLS



BROWN'S

BEAVER BRAND METALS

MADE IN CANADA

The following are Beaver Brand Products, all dependable and satisfactory:

Copper, Brass, Bronze, Canada Silver, and Gilding Metal in Sheets, Rolls, Plates and Rods, Naval Bronze, Yellow Metal and Muntz Metal in Sheets and Rods for Shipbuilding requirements. Specify Beaver Brass Rod for Drilling and Free Cutting. Extruded Shapes.

SEAMLESS BRASS AND COPPER TUBES

Send an order and become acquainted with the merits of Beaver Brand Products.

BROWN'S COPPER AND BRASS ROLLING MILLS, LTD.

GENERAL OFFICES AND MILLS:

NEW TORONTO (Near Toronto) ONTARIO, CANADA

COPPER & BRASS BROWN'S QUALITY ROLLING MILLS

OUR PROGRAMME FOR 1919

Cut Gears

Early in the New Year, we will announce a complete line of CUT GEARS for FORD PASSENGER CARS and TRUCKS. A little later, it is our aim to present to the Trade a most complete line of CUT GEARS for COMMERCIAL and AUTOMOBILE WORK.

Literature will be properly distributed as promptly as possible.

Boblett "Quality" Automobile Radiators

At this time, we are developing the BOBLETT RADIATOR in Canada. It is with pleasure that we make this announcement to the "CANADIAN AUTOMOBILE WORLD."

More complete and definite announcement will appear later.

McKINNON INDUSTRIES LIMITED

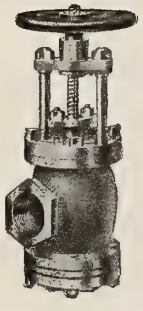
ST. CATHARINES, ONTARIO, CANADA

WE ARE MANUFACTURERS OF HIGH CLASS

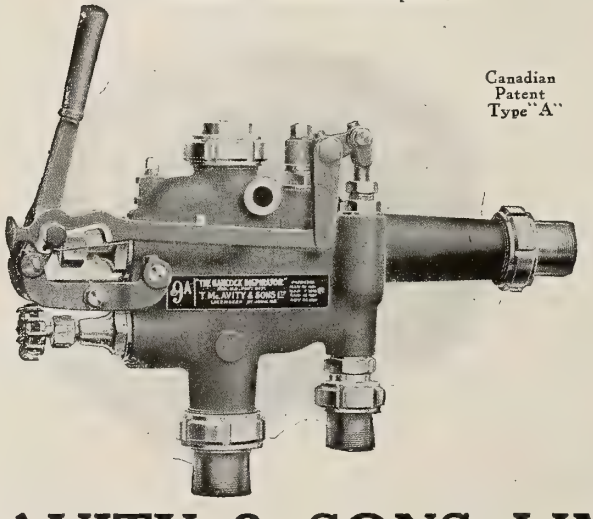
Pulp Mill and Locomotive Specialties

Hancock Locomotive Inspirator

Digester Relief Valve

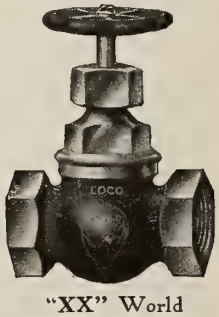


With Lead Filled Main Valve Seat for Relieving the Gas from the Digester



Canadian Patent Type "A"

Brass Screwed Globe Valves



"XX" World Double Taper Seat

Established 1834

T. McAVITY & SONS, LIMITED

Incorporated 1907

Wholesale and Retail Hardware, Brass and Iron Founders

ST. JOHN, N.B., CANADA

Montreal Toronto Winnipeg Vancouver

T. McA. Stewart 157 St. James Street Montreal

Harvard Turnbull & Co. 207 Excelsior Life Building Toronto

EDDY

ESTABLISHED A.D. 1851.

KNOWN FROM COAST TO COAST

THE name of Eddy is known throughout the length and breadth of Canada for products of safety and convenience. For sixty-seven years we have been building a reputation which is jealously guarded.

A stream cannot rise above its source, and no manufacturer can rise higher than his business ideals. That Eddy products are accepted as standard throughout Canada indicates that our own standards are worthy of confidence.

Eddy products serve the convenience and the safety of the Canadian public in countless ways. Indeed, "convenience" and "safety" are the watchwords of this big industry, the largest of its kind under the British flag.

When you specify Eddy products for the home or for the factory (matches, indurated ware, paper towels, etc.), you do not experiment. Years of experience is back of them, years of devotion to a high standard. Our prestige is your safeguard.



The E. B. EDDY CO.
Limited
HULL - CANADA

Also Makers of the Convenient and Sanitary Eddy Paper Towels



STELLITE

"Not Steel, but Its Master"

RECONSTRUCTION PERIOD

The part played by STELLITE in the winning of the war has been no small one. It was due to the use of STELLITE and the determination of our manufacturers that Canada was able to make such an enviable record in shell production.

What Canada has done in war she can do in peace, but she must continue along the lines of rapid production and efficiency.

By the use of Arc-Welded Tools of STELLITE your production can be increased and your tooling costs reduced.

Write Our Service Department for Particulars

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Limited
DELORO, ONTARIO

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200 King St. W.

Montreal:
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CANADIAN TUBE & IRON CO., LIMITED

Manufacturers of

BOLTS and NUTS

Carriage Bolts,
Coach and
Lag Screws,
Tire Bolts,
Machine Bolts,
Sleigh Shoe
Bolts,
Plow Bolts,
Track Bolts,
Square Nuts,
Hexagon Nuts,
Boiler Rivets,
Tinners'
Rivets, Etc.

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Black and Galvanized, sizes ⅛ in. to 4 in., is thoroughly inspected and tested to 600 lbs. pressure, and every length is branded with our trade-mark.

We also Manufacture

NIPPLES and COUPLINGS

Black and Galvanized in all sizes

Works: Lachine Canal, Montreal

Selling Agents for

Canadian Rolling Mills Co., Limited

Works: Lachine Canal, Montreal

MANUFACTURERS OF

Bar Iron and Steel

IN ROUNDS, FLATS AND SQUARES

ALSO

Twisted Steel Bars for Reinforcing

Selling Agents for

Colonial Wire Mfg. Co. Limited

Works: Lachine Canal, Montreal

MANUFACTURERS OF

SMOOTH STEEL WIRES

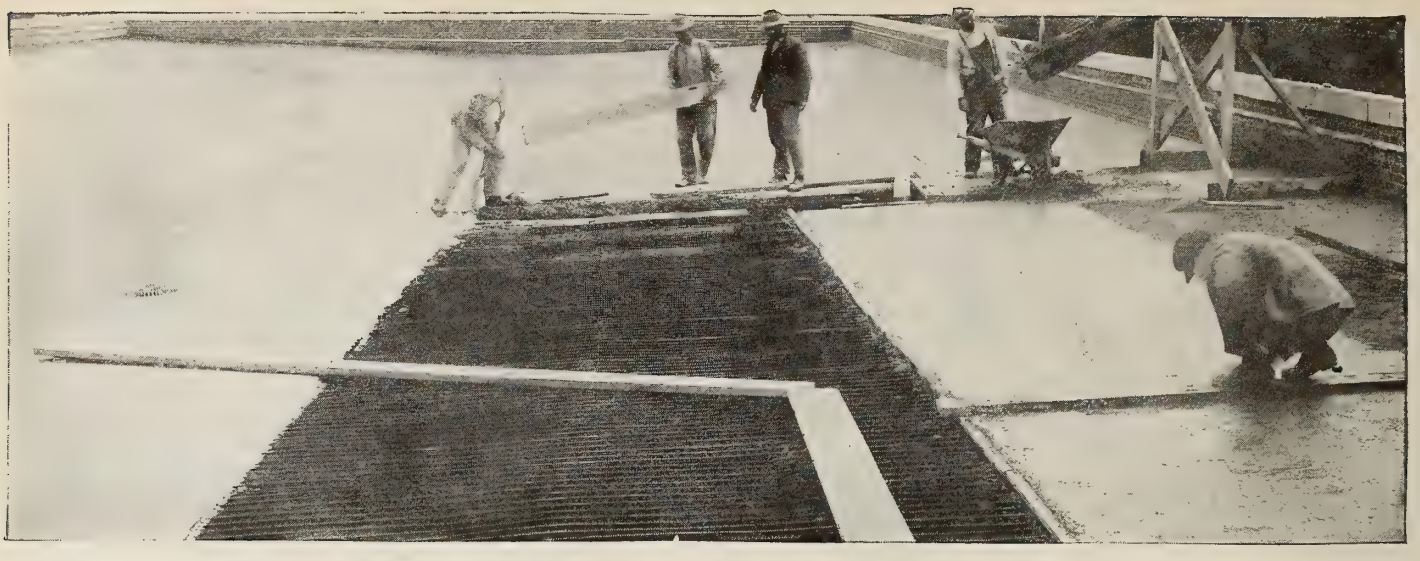
Bright, Annealed, Oiled and Annealed, Coppered and Coppered Spring.

TINNED MATTRESS WIRE
BROOM WIRE FINE WIRES
(Plain and Galvanized)

FENCE STAPLES
WIRE NAILS
WOOD SCREWS

PUMP RODS
(Plain and Galvanized)

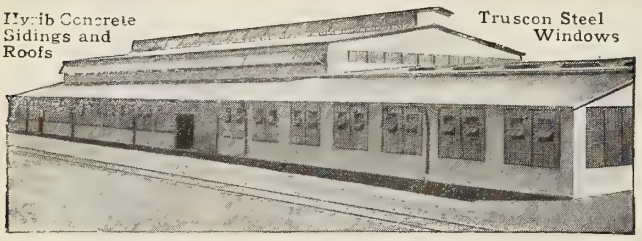
TRADE MARK



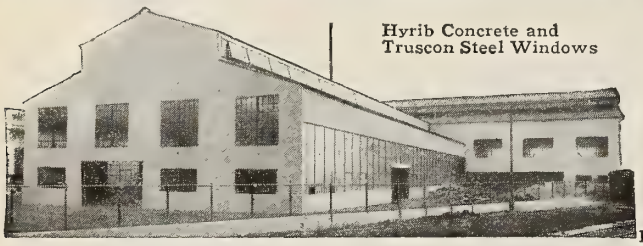
Concreting Hyrib Roofs



Hyrib Concrete Sidings and Roofs



Hyrib Concrete Sidings and Roofs — Truscon Steel Windows



Hyrib Concrete and Truscon Steel Windows

Fireproof Roofs and Sidings—

As Quickly Built as Flimsy Sheds

Roofs of Hyrib and concrete, and sidings of Hyrib and stucco make it unnecessary to build temporary shacks to obtain speed and economy. Hyrib construction is, in fact, ideally adapted to modern building conditions. Practically all materials are obtained locally, and local plasterers and concrete workers are always available.

Hyrib concrete construction is adapted to any type of framing —wood studs and rafters, steel girts and purlins, brick or concrete pilasters. Attractive and fireproof, a Hyrib stucco building adds permanent improvement at markedly low initial cost.

Hyrib

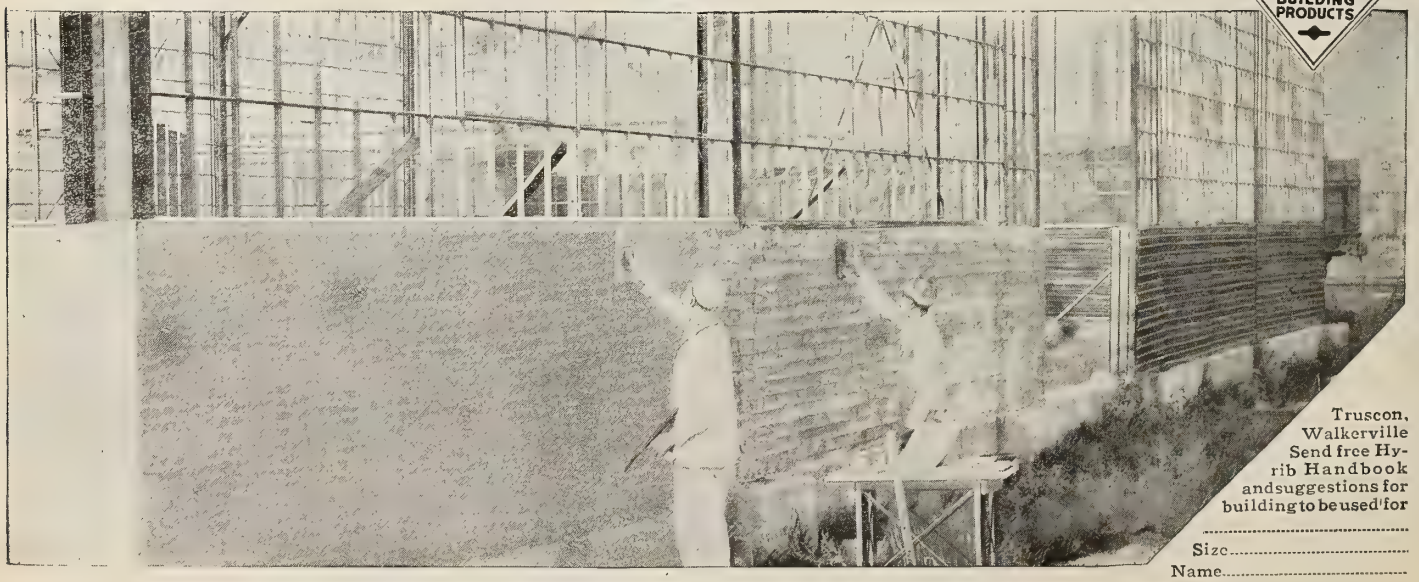
Hyrib is a steel meshed sheathing with stiffening ribs. Its use eliminates forms, and permits wider spacing of supports, resulting in a double economy.

Hyrib is also widely used for ceilings, partitions, furring, for "overcoating" old buildings, in fact for all plaster, stucco, and concrete work. Hyrib includes all types, weights and thicknesses.

Send coupon or write us for complete Hyrib Handbook.

Trussed Concrete Steel Co.
of Canada, Limited
Walkerville, Ontario
Montreal Toronto Winnipeg Calgary Vancouver

TRUSSED CONCRETE STEEL CO of Canada Limited
Truscon
BUILDING PRODUCTS



Plastering Hyrib Sidings

Truscon, Walkerville
Send free Hyrib Handbook and suggestions for building to be used for

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Size.....

Name.....

Address.....

Advertising Matter to be Effective

must be printed on

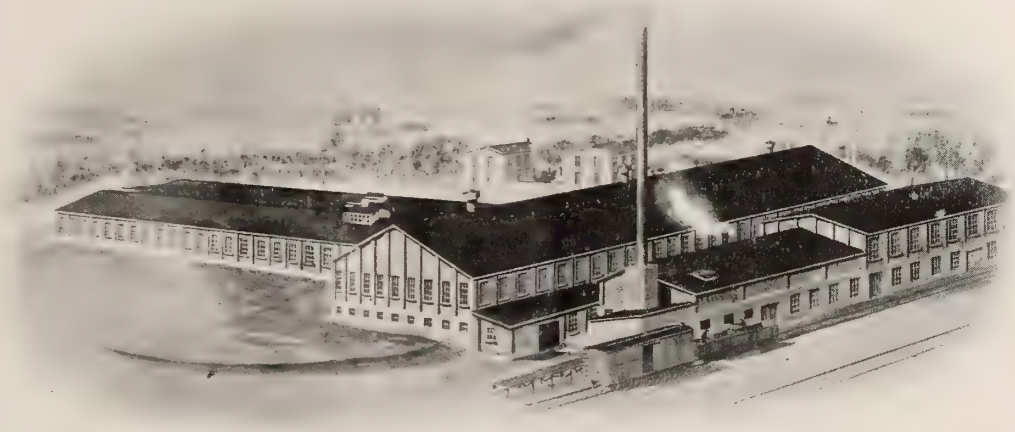
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MAPLE LEAF and BEAVER

Coated Books, Lithos and Blanks



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We are also largest manufacturers in Canada of
M.F. and S.C. Book and Lithos, Writings, Bonds,
Envelope Papers, Offset and Featherweight Books

PROVINCIAL PAPER MILLS CO., LIMITED

Mills at Thorold, Georgetown, and Mille Roches, Ont.

HEAD OFFICE - Bell Telephone Building, 76 Adelaide Street West - TORONTO

The Growth of a Printing Business

may be accepted as an indication of
its dependability. The Business of the

SATURDAY NIGHT PRESS

is growing to such an extent that
our establishment of a complete

DAY AND NIGHT SERVICE

was an absolute necessity



The satisfaction which our customers have
in doing business with us may be yours also

PHONE MAIN
6640

SATURDAY NIGHT PRESS
TORONTO

Write:
71 RICHMOND ST.
WEST

Printing Service *Art Service* *Copy Service*

For Fine Color Printing Use MAPLE LEAF COATED BOOK. Manufactured by Provincial Paper Mills, Limited, Head Office, Toronto, Ontario

MORRIS CRANES

HAND OR ELECTRICALLY OPERATED

SPEEDY

SAFE

RELIABLE



B. 91.

POWERFUL

LIGHT

DURABLE

THEIR REPUTATION IS NOT THE RESULT OF CHANCE, IT IS THE OUTCOME OF UNDENIABLE SUPERIORITY IN SERVICE.

UNDERNEATH THIS REPUTATION YOU WILL FIND THE SUBSTANTIAL FOUNDATION OF REAL WORTH.

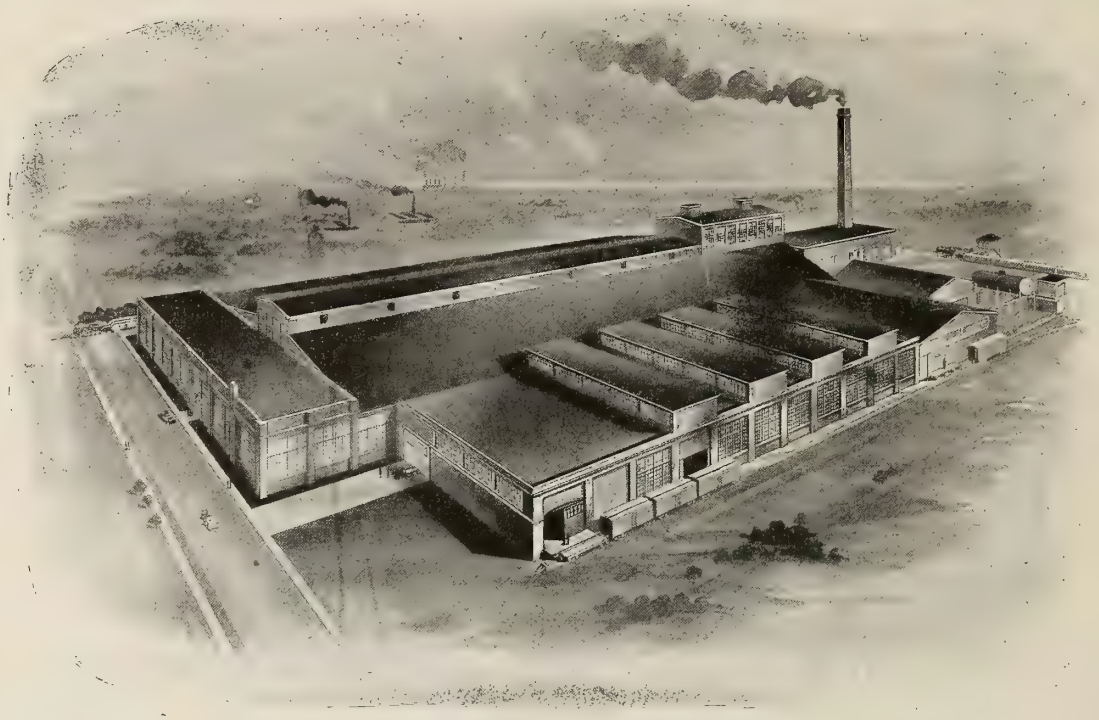
FOR OVER 30 YEARS WE HAVE SPECIALIZED IN THE MANUFACTURE OF ELECTRIC AND HAND-OPERATED OVERHEAD CRANES, JIB-CRANES, OVERHEAD-RUNWAYS I-BEAM TROLLEYS, CHAIN-BLOCKS, ASH-HOISTS, ETC. THIS EXPERIENCE WE PLACE AT YOUR SERVICE.

THE HERBERT MORRIS CRANE & HOIST COMPANY, LIMITED

HEAD OFFICE AND WORKS:
NIAGARA FALLS, ONTARIO

TORONTO OFFICE:
KENT BUILDING

MONTREAL OFFICE:
296 ST. JAMES ST.



CANADIAN HEADQUARTERS FOR

Cold Drawn Steel
and
Turned & Polished
SHAFTING

ROUNDS
1/8 in. to 6 in. Dia.

SQUARES
1/4 in. to 2 1/4 in.

HEXAGONS
1/4 in. to 2 1/4 in.

FLATS
up to 1 1/2 x 3 in.

Also: Free Cutting Screw Stock and Finished Keys

The Canadian Drawn Steel Company Limited

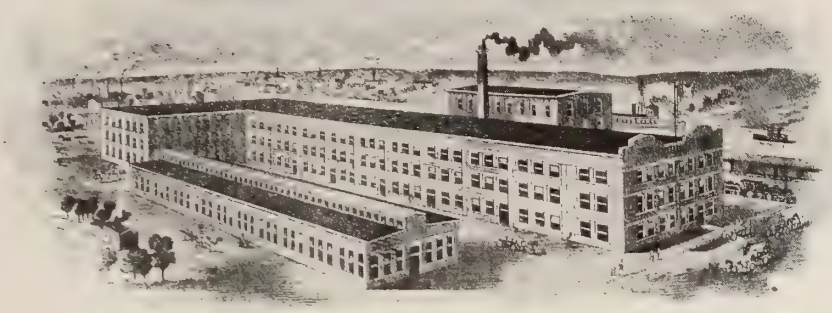
H. J. WADDIE, President & Manager
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The Parmenter & Bulloch Co.

LIMITED

ESTABLISHED 1864



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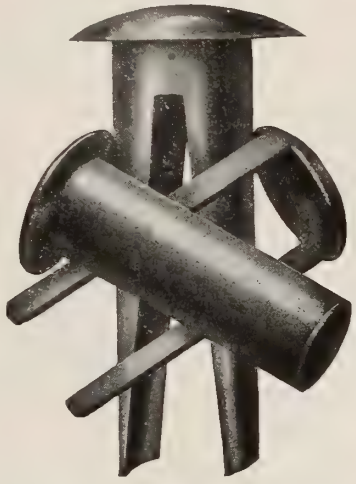
Iron Rivets
(⅜-inch diameter and smaller)

Copper and Brass Rivets

Wire Nails

Copper Nails

Escutcheon Pins



Bifurcated, Tubular and Outside Prong Rivets

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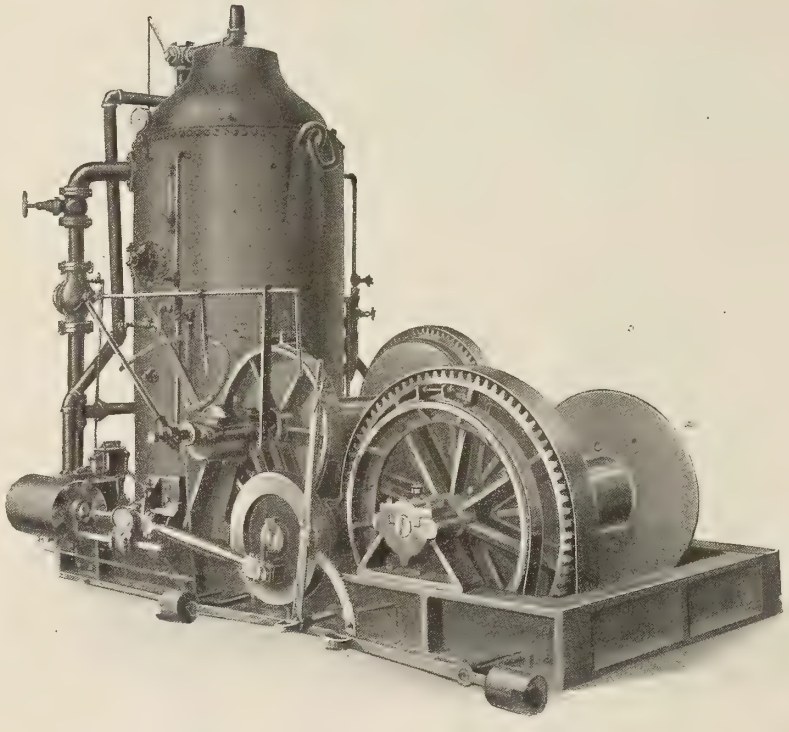
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9 Front St. E., Phone Main 541

WINNIPEG
138 Portage Ave. E.

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CARGO WINCHES **LOGGING ENGINES**
ANCHOR WINDLASSES **ELECTRIC HOISTS**
HOISTING ENGINES **CLAMSHELL BUCKETS**
DERRICK IRONS, ETC.



Standard 9 inches x 12 inches Logging Engine, Rope Cap of Front Drum 5,000 feet of ¾ inch cable Pulling capacity, 18,000 pounds.

Rope capacity of Rear Drum 10,000 feet, 7,000 feet of ½ inch cable.

Pulling capacity 10,000 pounds.

Gearing all of steel.

Boiler 48 inches x 96 inches. 125 pounds working pressure.

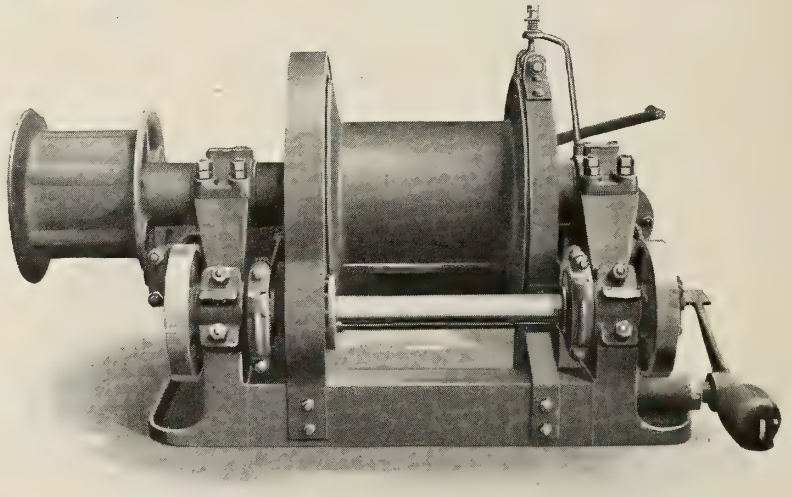
Foot brake on both drums.

Spool or Niggerhead on rear drum shaft.

As supplied the Forestry Corps for use in Great Britain and France.

Standard 8¼ inches x 8 inches, Cargo Winch. A type we are producing in quantities for French, Canadian and United States' ships. One of several kinds upon which we can quote attractive prices and deliveries.

Let us have your inquiries for Auxiliary Ship Machinery and Construction Equipment. We can serve you to good advantage.

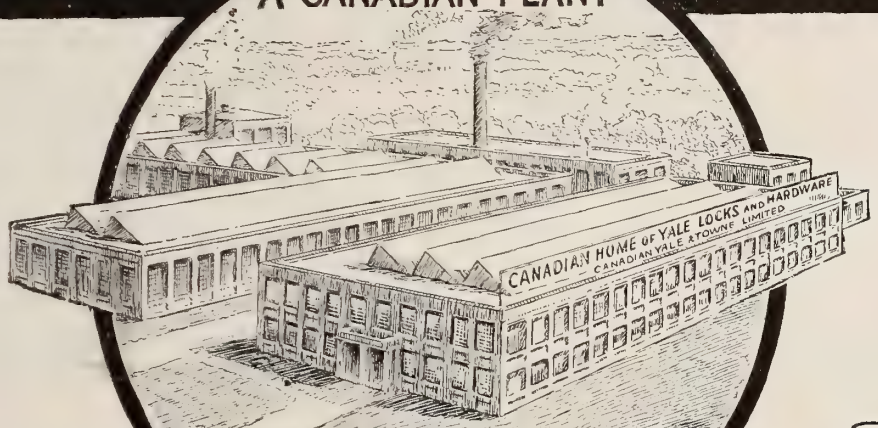


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E. Leonard & Sons, St. John, N.B.
Kelly-Powell, Ltd. - Winnipeg
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M. BEATTY & SONS, LIMITED
WELLAND, ONT. - - CANADA

TRADE **YALE** MARK

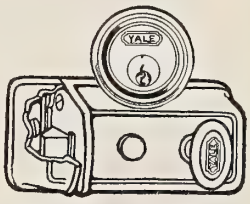
A CANADIAN PLANT



ST. CATHARINES WORKS
CANADIAN YALE & TOWNE LIMITED



Yale Standard Padlock



Yale Cylinder Rim Night Latch

A Great Canadian Industry

The protection of property and lives through the security of Yale locking equipment, the economic utility of the Yale Door Closer and the artistic decoration of homes with Yale Builders' Hardware places "Yale" among the greatest of Canadian industries.

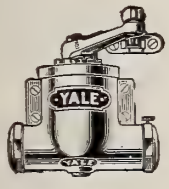
Reliability and Endurance mark the Yale Padlock, Night Latch, Door Closer and Builders' Hardware.

Your Yale Padlock will never let go until its own key releases it. It will stay on the job, always, under the most severe abuse.

Your Yale Cylinder Night Latch will guard your home effectively-relieving you from worry over the doubtfully safe lock that may now be there.

Yale Door Closers are needed whenever buildings are built---necessary devices for controlling doors, keeping out the cold, stopping the slam, and rendering service without mechanical trouble.

And Yale Builders' Hardware, beautiful in design, strongly wrought, and incorporating Yale locks of all kinds, will decorate your home while keeping it safe from intrusion.



Yale Door Closer

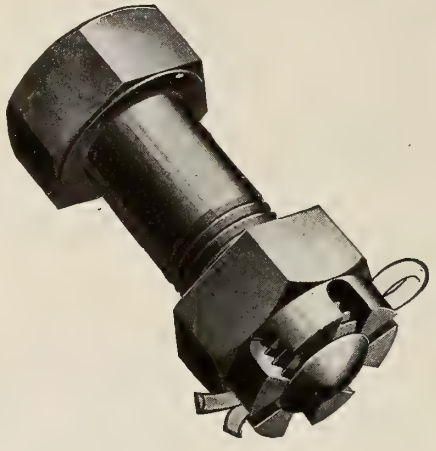


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(Dartmouth design)

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Standard sizes and threads

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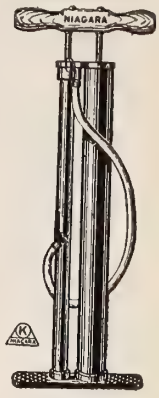
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TIRE CARRIERS for FORD CARS

BUMPERS, ROBE RAILS, ETC.

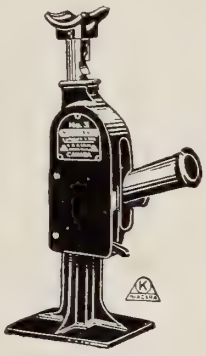


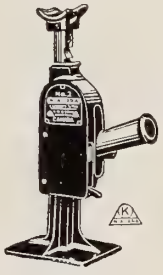


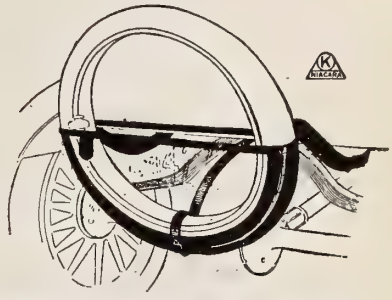




REPLACEMENT FRONT RADIUS RODS FOR FORD CARS

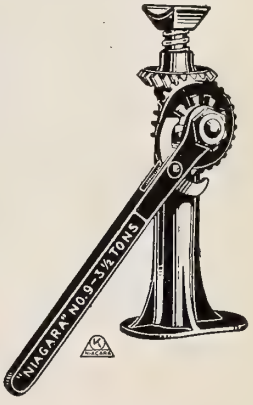


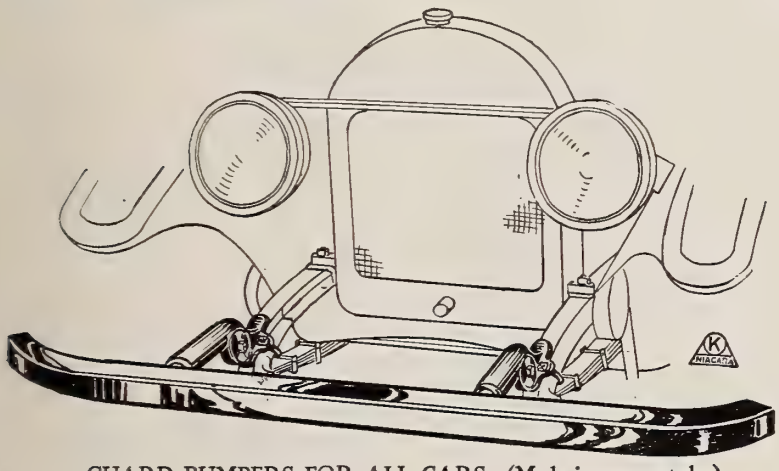




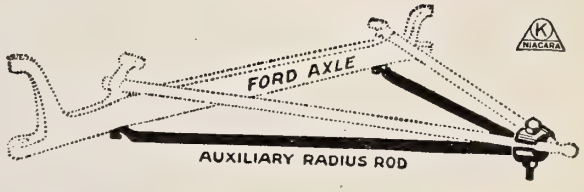
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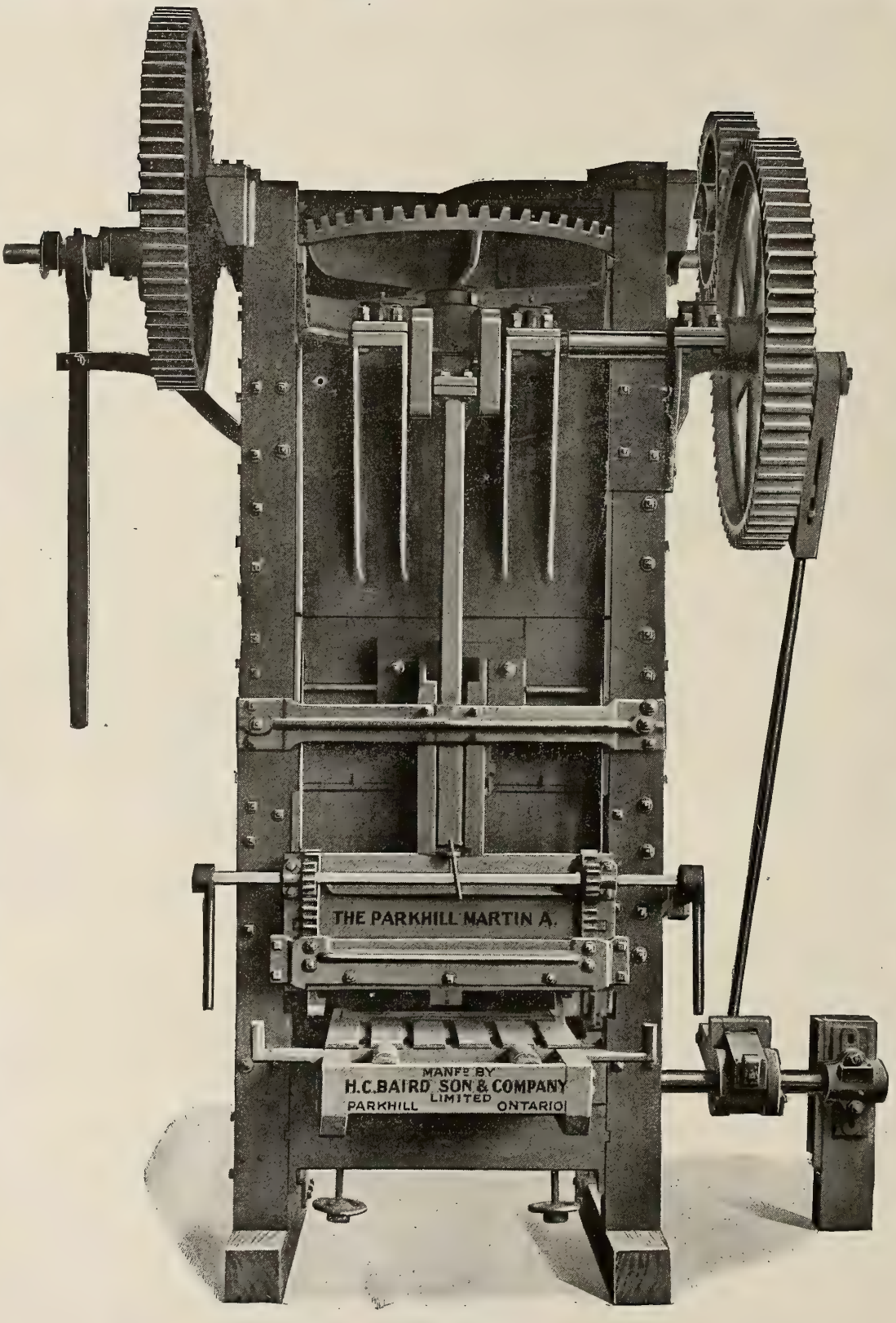
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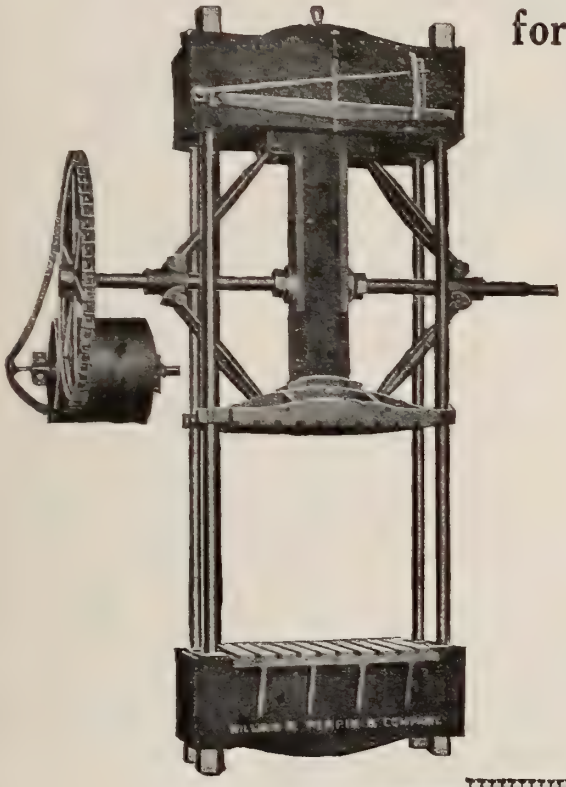
H. C. Baird Son & Company, Limited

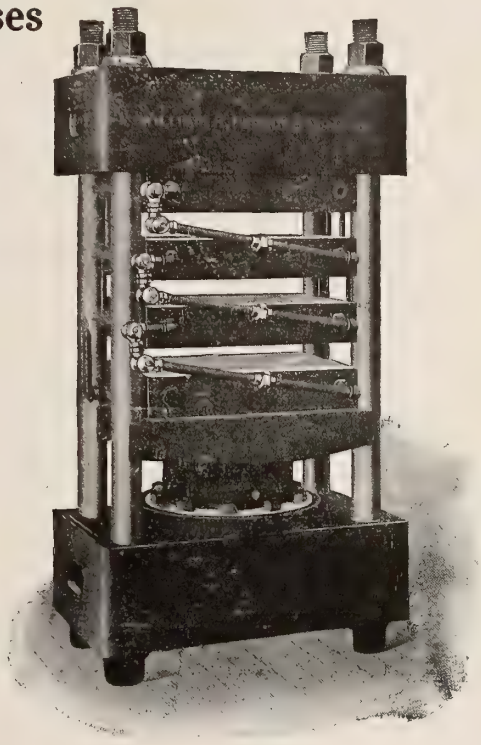
Parkhill, Ontario, Canada

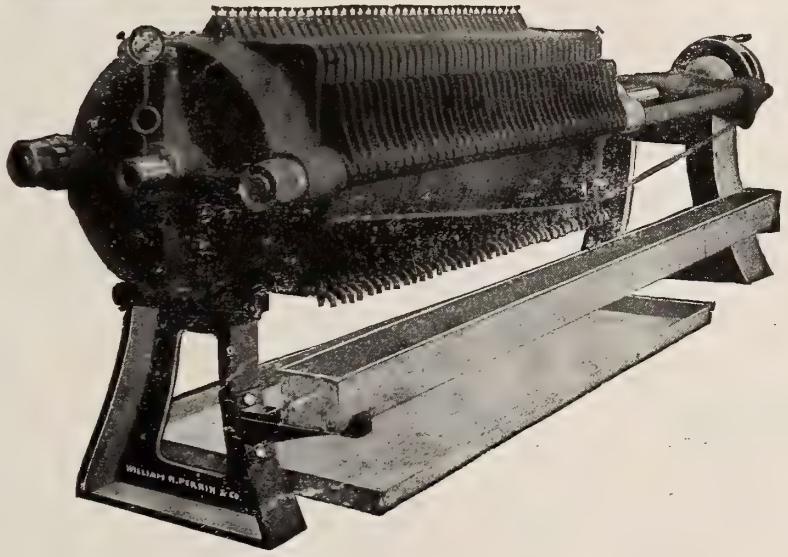
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Hydraulic, Power Screw and Filter

for all purposes





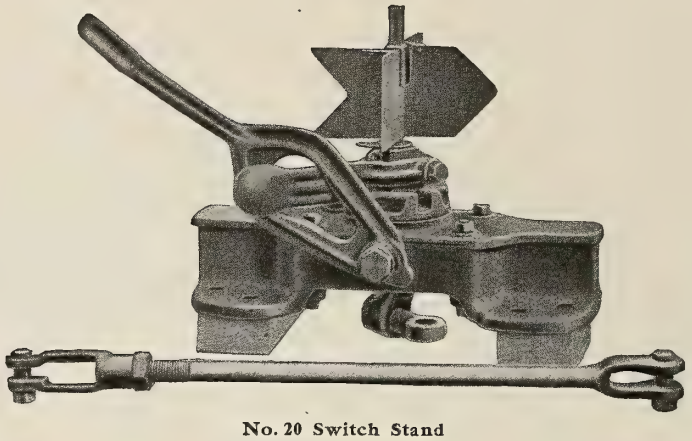


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WILLIAM R. PERRIN, LIMITED
TORONTO

RAMAPO Automatic Safety Switch Stands



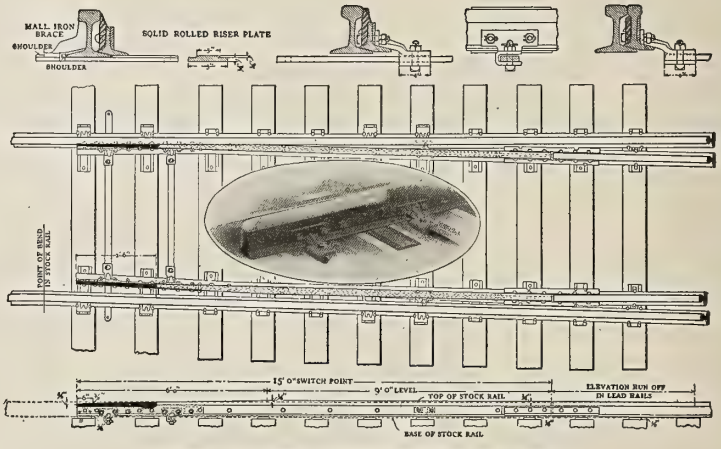
No. 20 Switch Stand

Railroads should use Ramapo Manganese Pointed Switch Style No. 12

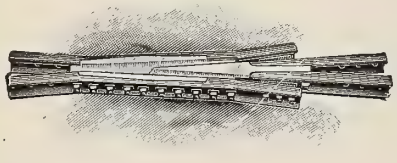
RAMAPO

Manganese Frog, Style No. 1

This Reinforced Manganese Frog will in Hard Service outwear all rail frog Four to Six Times.



RAMAPO MANGANESE POINTED SWITCH.- STYLE No. 12



This is the RAMAPO MANGANESE POINTED SWITCH which will outwear SIX TO TEN ordinary all rail switch points. Try it somewhere in the hardest place you know of.

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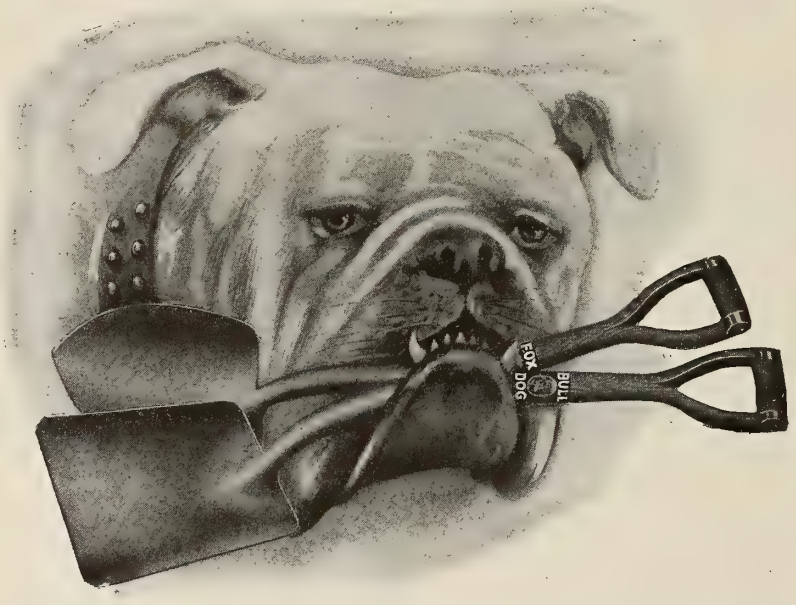
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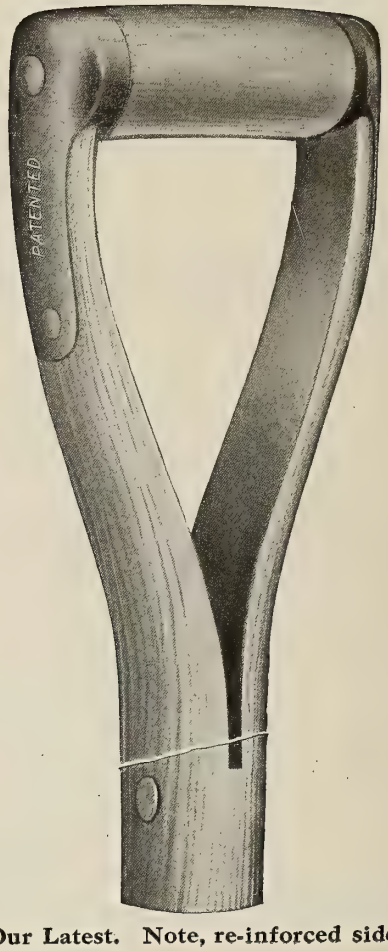
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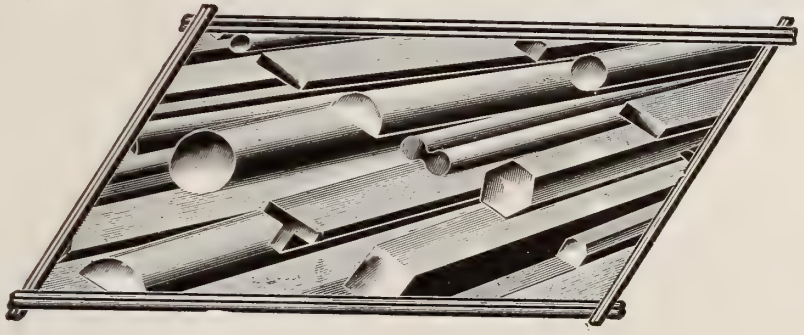
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SALES MANAGER



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Bright Cold-Finished Steel
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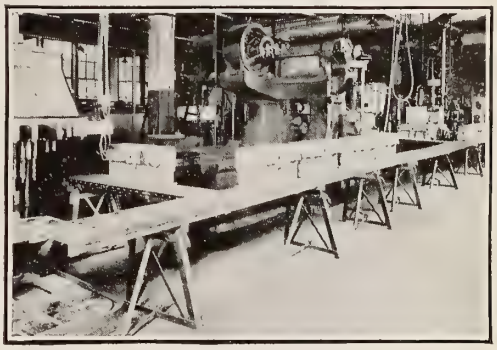
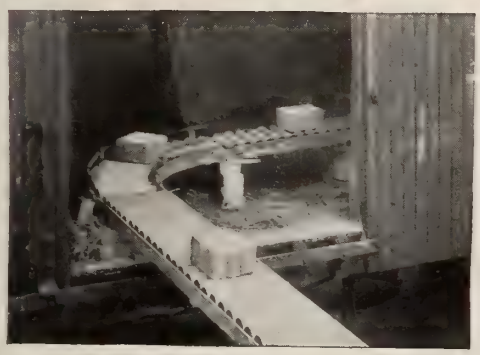
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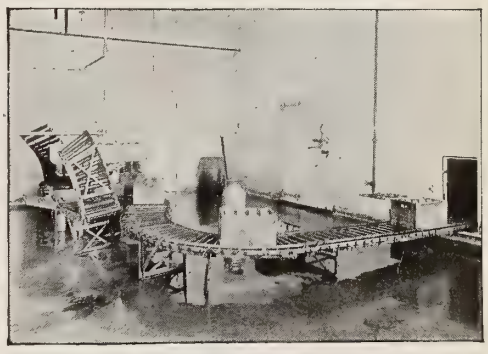
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Let a Mathews Conveyor be the solution of your handling problem

THE MATHEWS WAY THE SAVING WAY

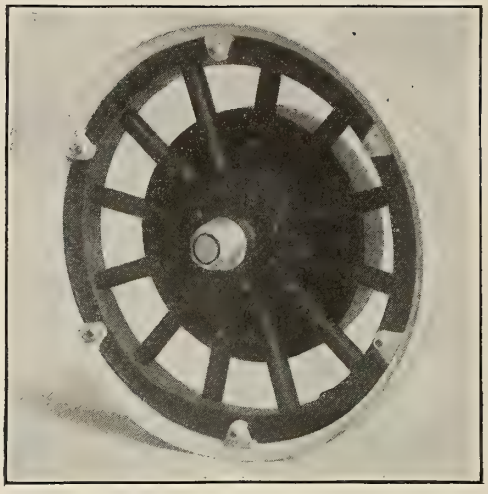
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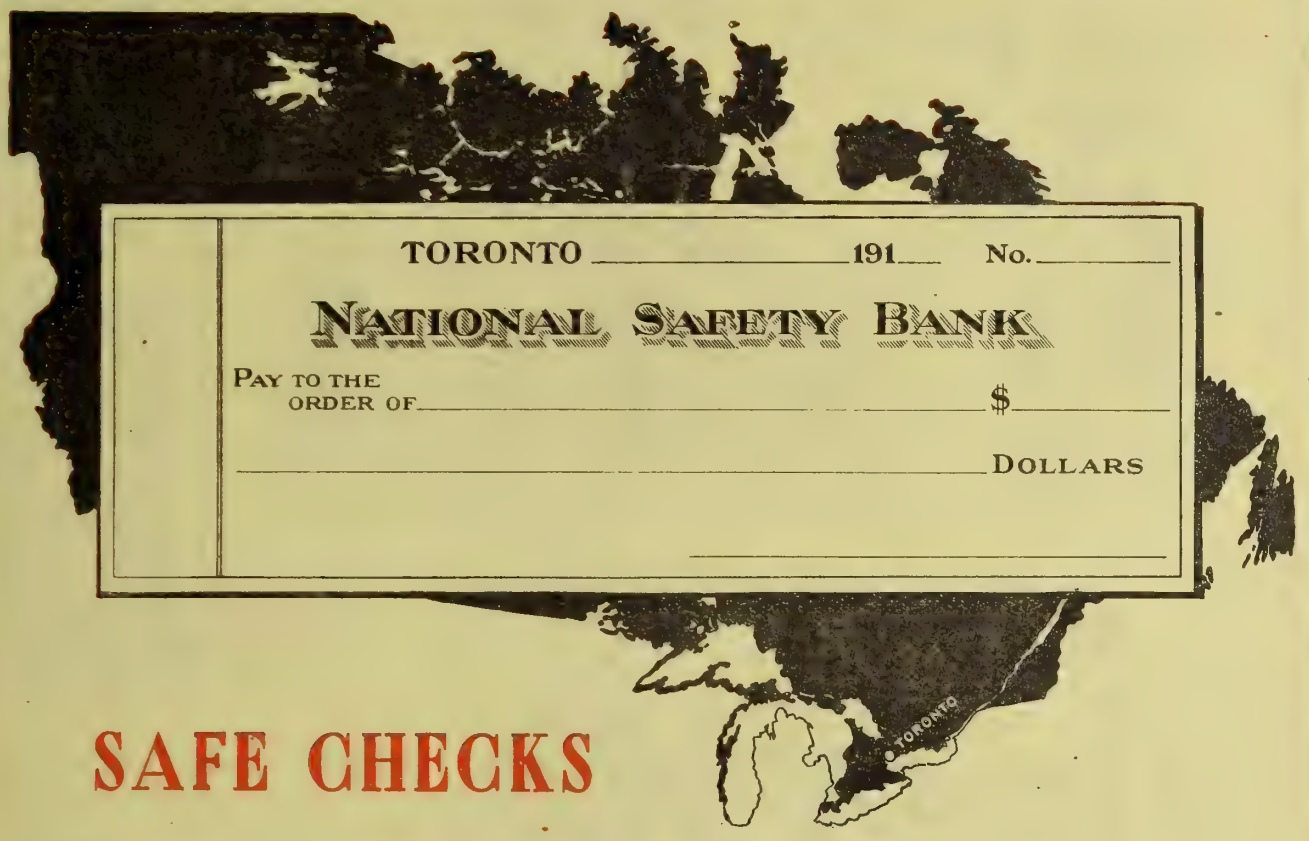


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NATIONAL SAFETY PAPER

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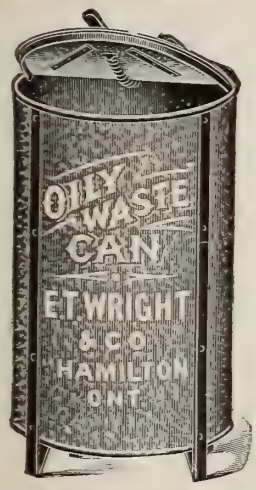
319 CARLAW AVE., - TORONTO, ONT.



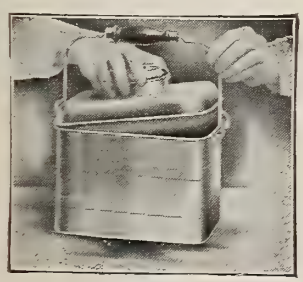
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The cheapest and most efficient method of fire protection for factories and warehouses.



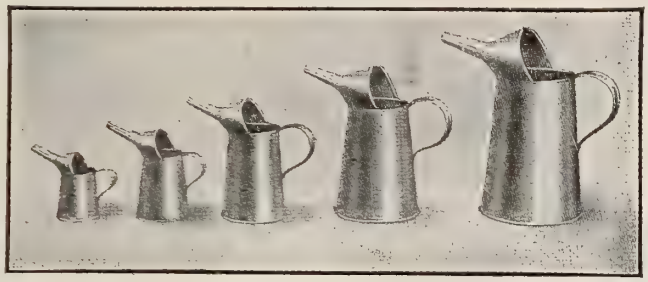
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E. T. Wright Co., Limited
HAMILTON - CANADA

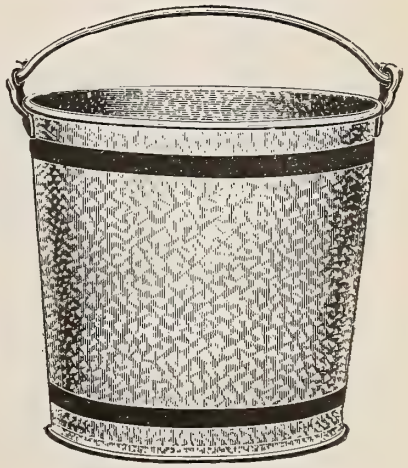




MACHINE OILERS
Large mouth style—Plain, Coppered or Japanned.



MACHINE OILERS
Let us quote you on these.



GALVANIZED PAILS
Light and heavy—straight and flaring—small, medium and large.



No. 1800—With veneer seat

The North American Bent Chair Co., Limited

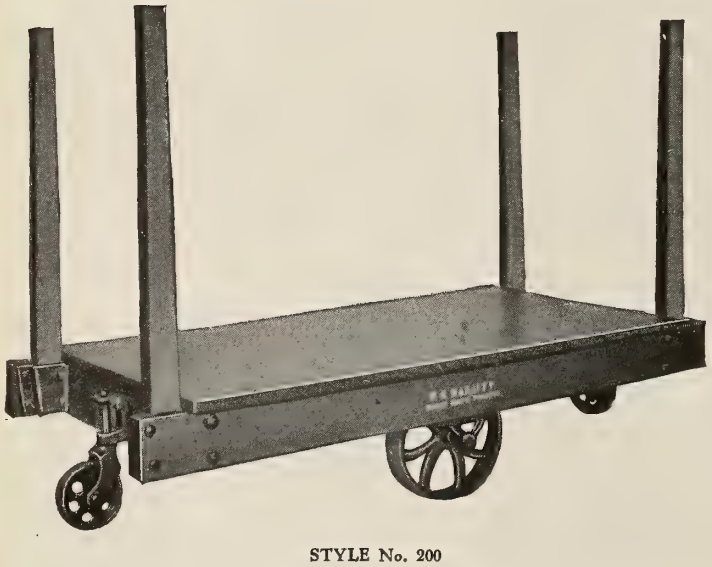
Owen Sound - Canada

Manufacturers of

Chairs for Home Consumption and Export

Write for our Catalogue and Prices

"Put it on Wheels"



STYLE No. 200

Though we manufacture all the Standard Styles of Factory and Warehouse Trucks, we also make to order any specific Style suitable to your business.

No greater efficiency can be obtained in moving materials than "Putting it on Wheels."

Catalog on request

THE W. S. MAHAFFY CO.

Manufacturers of Factory and Warehouse Trucks

COR. GLADSTONE AND TRAFALGAR AVENUES - - TORONTO, CANADA



Butterfield

TWIST DRILLS GEAR AND MILLING CUTTERS

For the Manufacture of Peace-Time Products

PROMPT DELIVERIES

Quality

It goes without saying that during the period of reconstruction, when manufacturers in all lines will be adapting their plants to peace-time production, competition will be unusually keen. This means that production economies must be diligently sought for. And in this connection the use of the best grade of cutting tools will be of good service. Butterfield Carbon and High-Speed Twist Drills, Gear and Milling Cutters, Side Mills and End Mills, with straight or spiral flutes, and plain or nicked teeth will give you accuracy, fast work and long service—the three essentials of tool efficiency.

If you haven't got a Butterfield Catalogue handy, write for a copy, you'll find it useful—sent immediately on request.

Butterfield & Company, Inc.

ROCK ISLAND, QUE.

TORONTO OFFICE: 220 KING STREET WEST

WE are convinced that there is a great future ahead of our country (Canada), and while there may not be Munitions manufactured, still we believe the Manufacturers of Canada are going to be busy.

We believe in the "business as usual" policy. We not only believe that Canada will hold her own, but in the march of progress will greatly increase her manufactures. To show you the confidence we have in our country, we announce that we have just completed a modern three-storey structure which will increase our manufacturing space more than double.

We would ask our friends to forward all their orders for

CAP SCREWS
SET SCREWS
ENGINE STUDS
COUPLING BOLTS
NUTS (every variety of finish)
TWIST DRILLS
REAMERS, Etc.

With our increased facilities we will be able to give good attention to our customers' requirements.

John Morrow Screw & Nut Company, Limited
Ingersoll - Canada

Nova Scotia Steel & Coal Co.
LIMITED

PLATES

1/8 to 5/8" thick up to 48" wide, weighing up to 1060 lbs. each

Fluid Compressed Steel Forgings

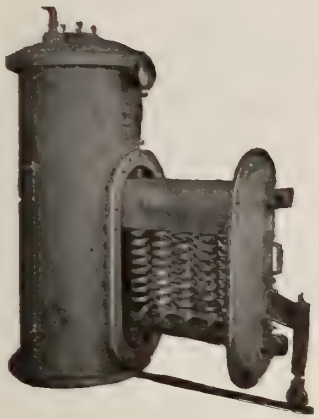
We manufacture Merchant Bars, Rounds, Flats, Squares, Ovals, Half Ovals, Tires, Sleigh Shoes, Plain or Twisted Concrete Bars, Agricultural Sections, Cold Drawn Shafting, Machinery Steel, Angle Bar Fish Plates, Track Spikes and Bolts.

General Sales Office:
WINDSOR HOTEL, MONTREAL

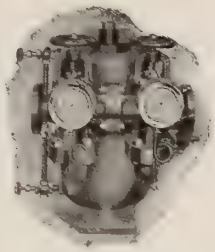
Head Office:
NEW GLASGOW, N.S.

Mason Regulator and Engineering Co.
Limited

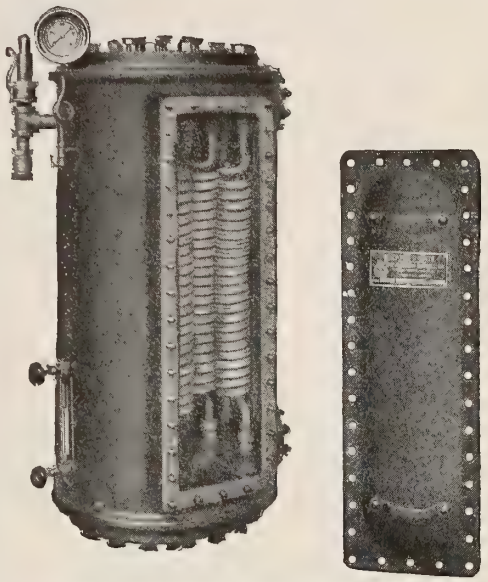
Successors to H. L. Peiler & Company



Reilly Marine Evaporator
Submerged Type



Reilly Multi-screen
Feed Water Filter



Reilly Multi-coil Feed Water Heater

Made in Canada by a Canadian Company



Mason Standard
Reducing Valve

We are prepared to supply the well-known material shown here. Special attention is directed to our Standard Reducing Valves and Pump Pressure Regulators. Reliable, simple and of "Mason" workmanship. "Reilly" material needs no introduction.

We furnish bulletins and full information on request.



Mason No. 55 Style
Pump Pressure
Regulator

Sole Licensees and Distributors for :

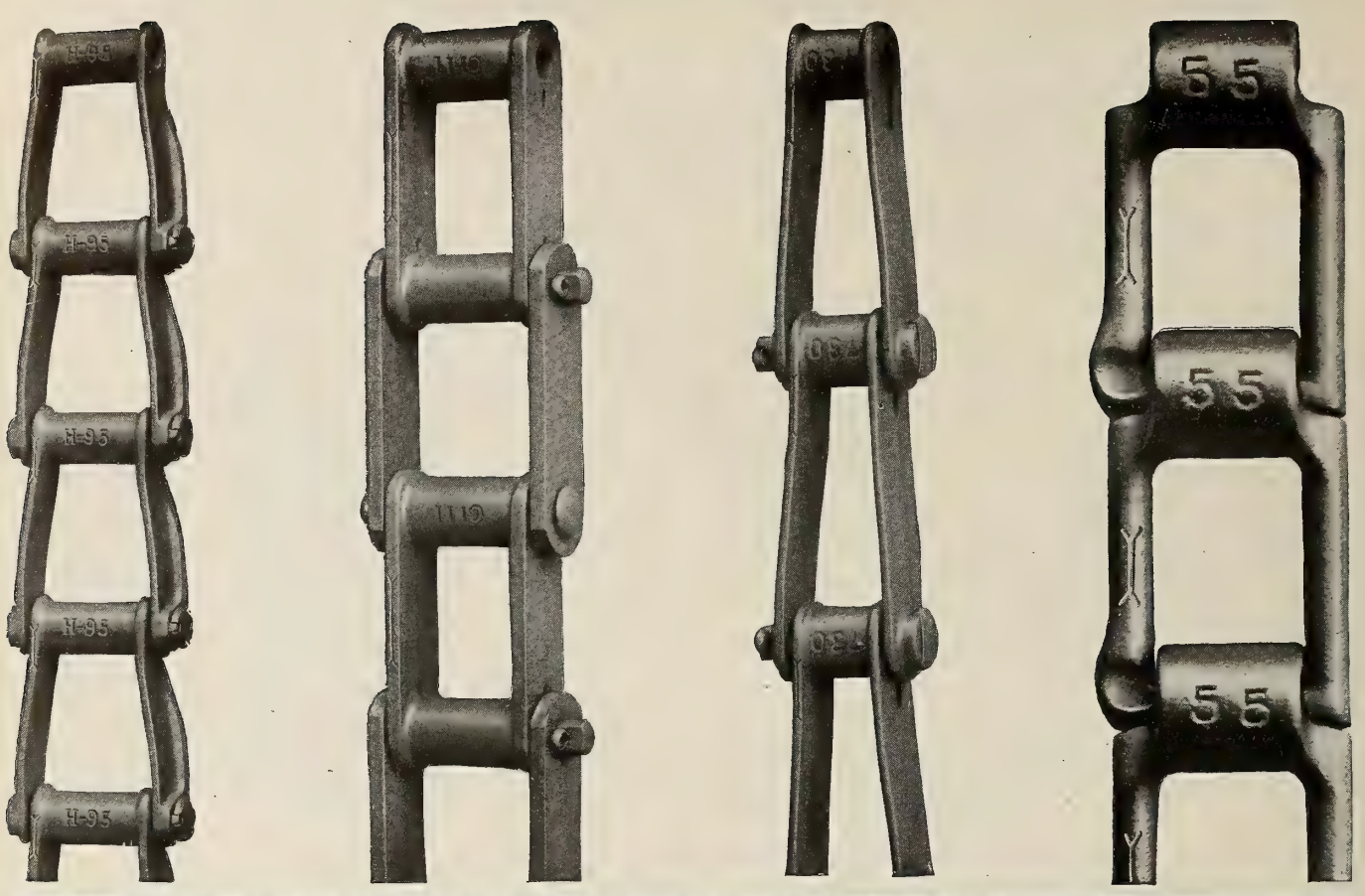
The Mason Regulator Co. (Pressure Regulators)
Griscom-Russell Co. (Heaters and Evaporators)
Nashua Machine Co. (Bundy Traps)
Coppus Engineering and Equipment Co. (Blowers)
The Sims Co. (Storage Heaters)

The Mason Regulator & Engineering Co., Limited

Successors to H. L. PEILER & COMPANY

MONTREAL, Office and Factory, 135 to 153 DAGENAIS ST.

TORONTO REPRESENTATIVE : Arthur S. Leitch Co., 506 Kent Building, Toronto



LINK-BELT
FOR EVERY PURPOSE

Whether your problem is one of power transmission, elevating or conveying, we have a type of Link-Belt especially designed for the purpose.

And when we say "especially designed," we mean it. For our engineers have spent years in the study of the peculiar conditions and requirements which various industries place upon Link-Belt. Each type has been designed not with the thought of how cheaply it can be made, but how perfectly it can serve its purpose. We show a few types of Link-Belt above. Our catalog shows many others. Send for a copy.

CANADIAN LINK-BELT COMPANY, LTD.

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MADE AND CARRIED IN STOCK IN CANADA



40 Ton Steel Frame Box Cars. Canadian Government Railways.

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LIMITED

PASSENGER and FREIGHT CARS
OF EVERY DESCRIPTION

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Ship Castings a Specialty

CANADIAN STEEL FOUNDRIES
LIMITED

Acid and Basic Open Hearth,
Ferro-Alloy

STEEL CASTINGS

to suit any requirement

MANGANESE STEEL
TRACKWORK

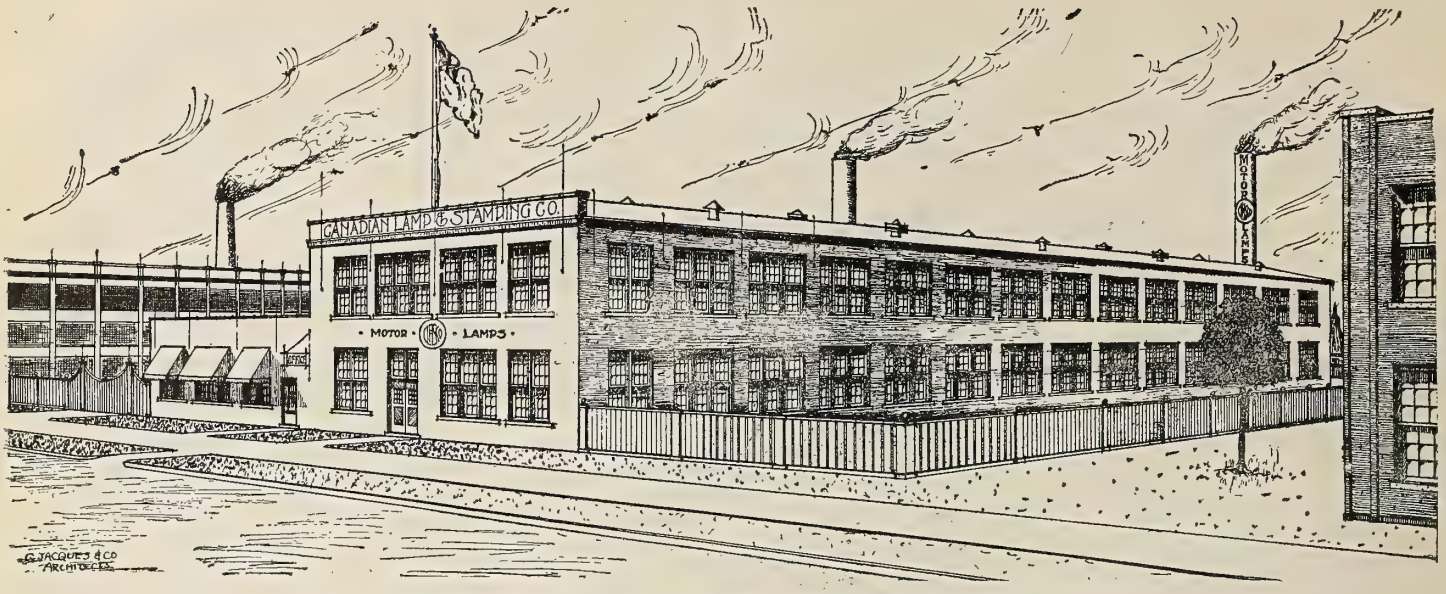
For Steam and Electric Railways

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MALLEABLE CASTINGS

For all purposes. Capacity 2,500 tons per month.

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TRANSPORTATION BUILDING
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Our specialty is the producing of difficult stampings and deep drawing work in Brass, Steel, Copper, etc., and our plant is adequately equipped to handle this class of work.

Our continually growing list of particular customers, is your best guarantee of ***co-operation, service,*** and ***genuine satisfaction.***

Nothing too small; nothing too difficult for our consideration.

Canadian Lamp and Stamping Co., Limited

Ford City, Ontario

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PRODUCED IN CANADA

BY

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PIG LEAD—Chemical, Corroding and Common

Sales Office: C.P.R. Bldg., Toronto

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PORT ARTHUR, ONTARIO, CANADA.

Designers and Builders

Steel Ships, Engines, Boilers, Etc.

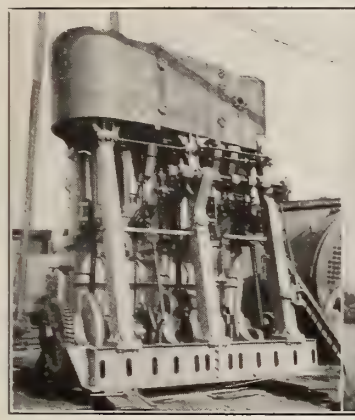
Noronic

Leaving plant of Port Arthur Shipbuilding Company, Ltd., on completion, May, 1914.

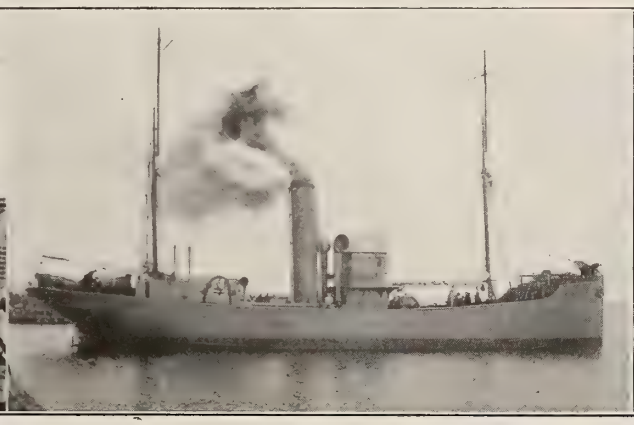


Passenger and Freight Steamer

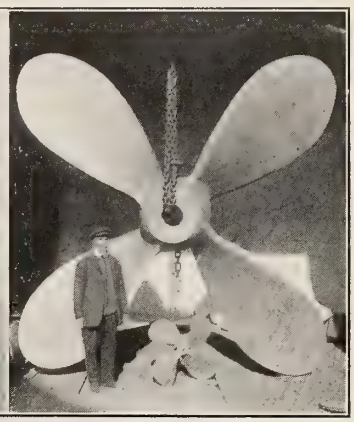
Length Overall 385 ft.
Breadth Moulded 52 ft.
Depth Moulded 28 ft. 9 in.
Gross Tons 6,905.



1500 H.P. Engine, Triple Expansion



Fourteen of these Trawlers for Dept. of Naval Service



Wheel Casting 14 ft. 9 in. diameter

W. Grant Morden

coaling at C.N.R. Coal Docks. Port Arthur.

Built by Port Arthur Shipbuilding Company, Ltd. Year 1914



Bulk Freighter

Length Overall 625 ft.
Breadth Moulded 59 ft.
Depth Moulded 32 ft.
Gross Tons 8,973

The above are some of the products of our plant

We are also fully equipped with every modern facility for REPAIR WORK

DRY DOCK 700' x 93' x 16'
Four Building Berths

General Offices and Plant:
PORT ARTHUR, ONTARIO

THE automobile has become a part and parcel of the life of the nation. Its uses and utilities are woven into nearly every phase of our home, business, financial, social, professional, even governmental life.

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Willys-Overland Limited

West Toronto, Ont.

Willys-Knight and Overland Motor Cars

Branches: Montreal, Que.; Winnipeg, Man.; Regina, Sask.

B.C. MARINE

LIMITED

Vancouver, B.C.

SHIP REPAIRS DRY-DOCKING
ENGINE REPAIRS

Capacity of Marine Railway
1700 Tons Deadweight

WE OPERATE

the largest Forge Shop in British Columbia.

FORGINGS OF ALL DESCRIPTIONS

Shafting, Rudder Stocks, Crankshafts, Piston Rods. In the rough, partially machined, completely finished.

We carry a large stock Lloyd's Steel Billets up to 16 inch diam. or square.

WE MANUFACTURE

Hallander Patent Safety Water Tube Boilers.

High Pressure Steam for Marine or Stationary Work, in Single Units up to 200 h.p. Steam Pressure, 250 lbs. per square inch.

Low Pressure Steam and Hot Water Heating Boilers. The Most Economical Heating Unit for any size Residence, Hotel or Apartment House.

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LIMITED

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MONTREAL

Established 1877
Incorporated 1918

And 261-263-265 Ontario St.
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WHOLESALE DRUGGISTS
MANUFACTURING CHEMISTS

Special representations for the Dominion invited, and substantial results guaranteed.

Correspondence is especially invited from manufacturers at home and abroad in all lines that pertain to the wholesale drug business, such as Drugs, Chemicals, Essential Oils, Druggists' Sundries, Small Wares, etc.

We also invite requests for quotations on Drugs and Chemicals, both fine and heavy, which shall have our prompt and careful attention.

Only Industry of Its Kind in the Dominion

Some of Our Products:

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Bleaching Powder
Sulphur Chloride

SALT WORKS

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Dairy Salt
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The Canadian Salt Co., Limited
WINDSOR - ONTARIO

RAW DOLOMITE

FOR

Blast Furnace Open Hearth
Cupola Flux

ALSO

Crushed Stone

For Concrete and Road Metal

Canada Crushed Stone Corporation

Limited

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SHEET METAL STAMPINGS
PRESSED STEEL PARTS

You can replace castings in many places with Sheet Metal Parts, and thereby make

A BIG SAVING

Secure Our Advice and Estimates

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Stamped and Spun Brass Goods

SCREW MACHINE PRODUCTS



Write for Our Latest Catalogues, Advising in What Line You Are Interested

W. H. BANFIELD & SONS, LIMITED

Head Office and Works:
370-386 Pape Avenue
TORONTO

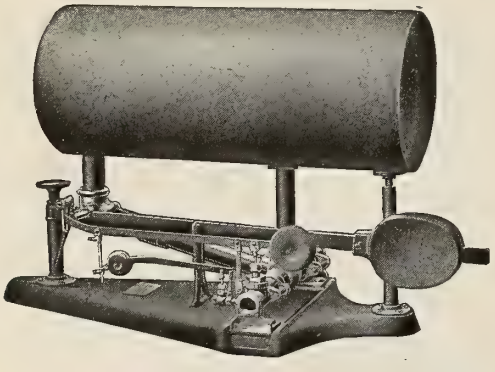
Show Rooms:
80 King Street West
TORONTO

We Can Help You Solve the Coal Problem

A long list of manufacturers in Canada have used the

Morehead Back to Boiler SYSTEM

effectively to reduce their coal bills.



The Morehead Back-to-Boiler System is a system of steam coil drainage and boiler feeding that delivers the condensation from the steam coils back to the boiler only a few degrees cooler than the steam.

It saves you money, because it requires less fuel to heat the feed water, and because by removing the condensation from the heating coils it makes them more efficient.

Write for particulars affecting your case to-day. Our engineering service is at your disposal.

Canadian Morehead Manufacturing Co.

Woodstock Dept. "K" Ontario

Don't Wait!

Dealers, if you have been waiting for reconstruction to begin before taking on that new transmission line you have been promising yourself, don't wait longer. Your competitor may have his eye on the same line.

There are some lines of power transmission equipment that you would have to advertise. Why not sell a line that will advertise you?

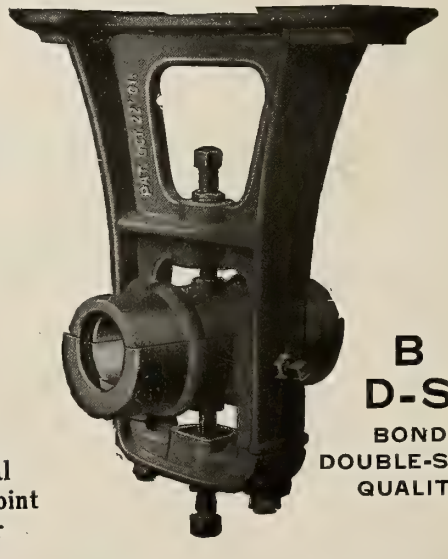
Bond Double-Sure Power Transmission Equipment is an old established trademarked line, nationally known and fully guaranteed as to performance. It includes hangers, bearings, collars, couplings, pillow blocks, base plates, mule stands, etc., and every item in the line is correct in design and manufacture.

Bond Double-Sure Equipment is sure to sell and sure to satisfy. Write our sales manager TODAY for Catalog 38-IC—Don't wait!

BOND ENGINEERING WORKS, Limited

Harbor Industrial District

TORONTO CANADA



The Original Four-Point Hanger

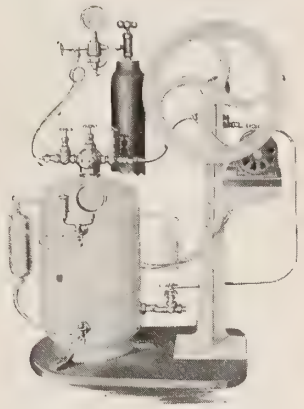
B D-S BOND DOUBLE-SURE QUALITY



Soda Fountain

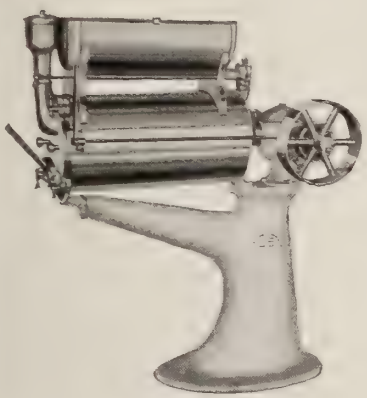
We are
Canada's Largest
Manufacturers of

SODA FOUNTAINS
and
CARBONATORS



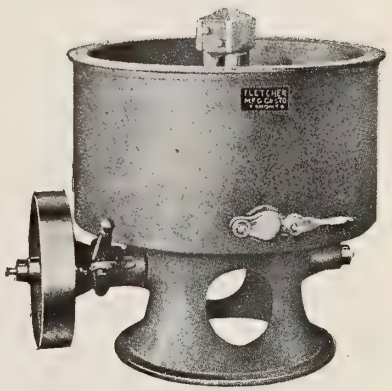
Soda Water Carbonator

WAXED PAPER
STRAWS



Ice Cream Freezer

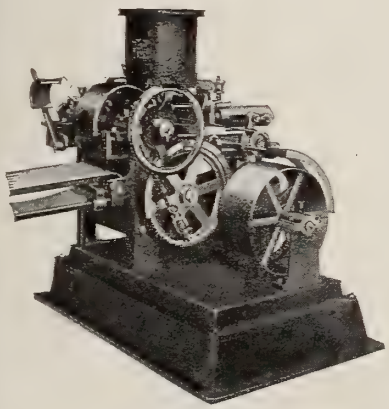
ICE CREAM
MACHINERY
and UTENSILS



Chocolate Melter

CANDY TOOLS
and MACHINERY

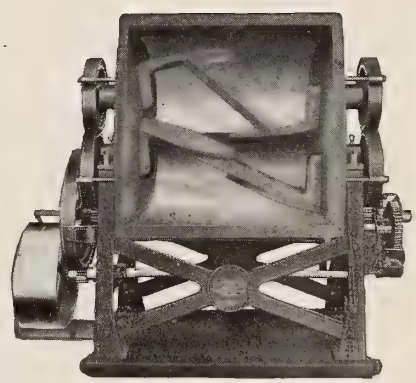
BAKERS' MACHINERY
TOOLS and UTENSILS



Dough Divider

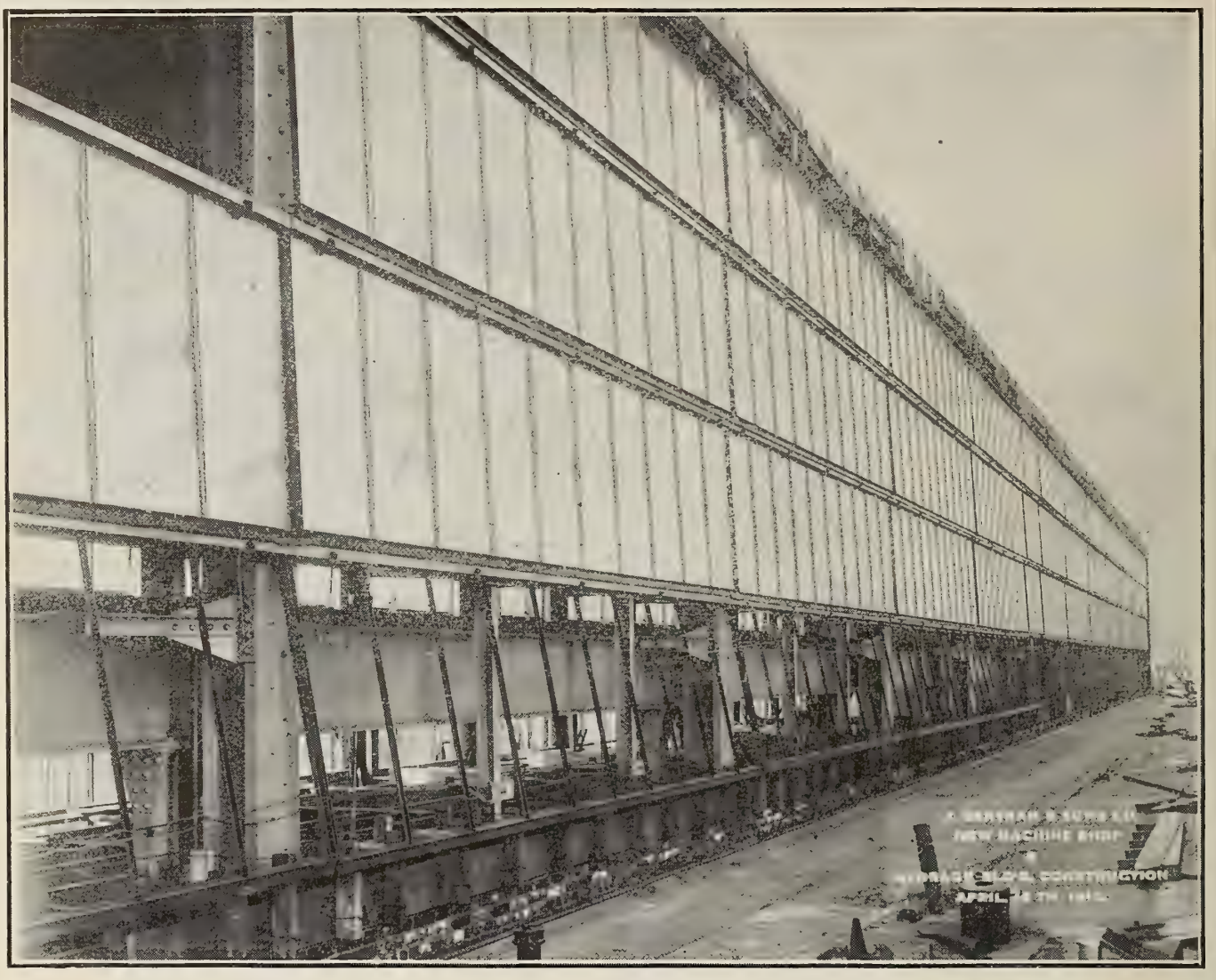
FACTORY LUNCH
ROOM EQUIPMENT

And all accessories
pertaining to these
lines.



Dough Mixer

FLETCHER MANUFACTURING COMPANY
LIMITED
29-41 HAYTER ST. - TORONTO, CANADA
Factories:—Toronto and Glencoe



Section of John Bertram Sons Co., Ltd., plant at Dundas, Ontario. P. H. Secord & Sons, Ltd., Brantford, general contractors. We supplied 25,000 feet of Ormsby-Lupton Side Wall and Pond Continuous Sash.

Use It Where You Will

Pond Continuous Sash is top-hung under an overhanging angle and overlaps storm panels 2 feet wide at the ends. Its 20-foot units are connected by weather proof expansion caps giving needed flexibility for alignment with steel work.

Its members are extra heavy and rigid; all joints are oxy-acetylene welded. Control in long lines is made easy by the patented Pond Operating Device, hand or motor driven.

Immediate deiveries from stock.

Whether in side walls, monitors or roofs, Pond Continuous Sash overcomes the limitations of old-time windows. Operated in long lines or groups by the Pond Operating Device, it affords mass ventilation with mass control, and weather protection open or shut.

By ensuring an abundant fresh air supply under all conditions, Pond Continuous Sash is working a transformation in efficiency. The best results follow where the building is designed to take full advantage of the ventilating possibilities afforded by the sash.

We gladly place the results of our wide experience in design at the service of our customers and their architects or engineers.

Booklet, "Air, Light and Efficiency," tells more about Pond Continuous Sash and how it may be used.

Pond Continuous Sash in saw-tooth roof. For maximum ventilation the sawtooth sash lines may be operated in groups by electric motors. This construction enables all the most exacting work to be done under ideal conditions. A building so designed may be made wider or higher than would otherwise be practicable.

THE A. B. ORMSBY CO., LIMITED
TORONTO

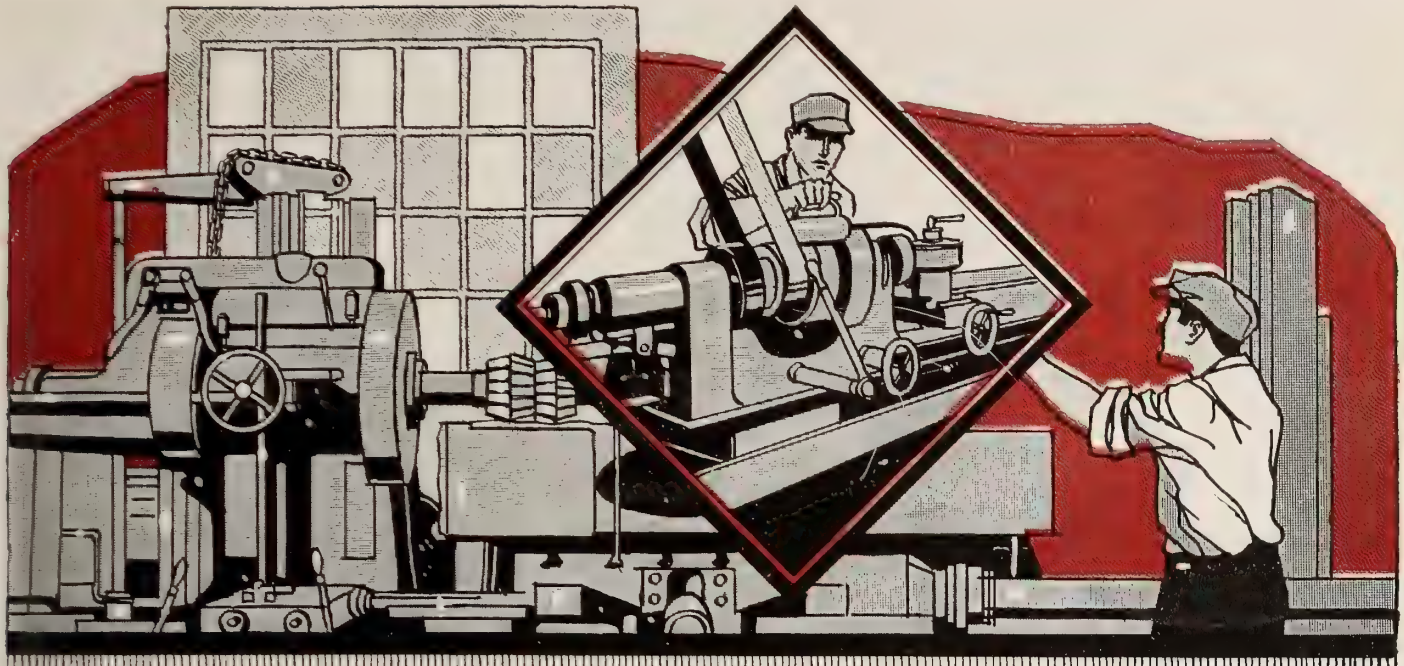
Makers of Modern Equipment for Daylighting and Natural Ventilation

Associated with The Metal Shingle & Siding Co., Limited.
Factories at Preston, Toronto, Montreal, Winnipeg, Saskatoon, Calgary

AGENTS:

Maritime Provinces: F. A. Gillis & Co., Halifax, N.S.

British Columbia: A. T. Chambers, Vancouver.



SPEED UP YOUR PLANT

CORRECT lubrication will do much to increase and maintain the efficiency of your plant. The right use of the proper lubricant means smooth-running and longer life for your power units, no matter whether you are producing ocean liners or baby carriages, electric power or metal ores.

Lubrication always has a direct and important relation to production costs. Correct lubrication means:

(a) Increased plant production.
(b) Lower operating costs.
(c) Minimum fuel consumption.
(d) Smaller repair bills.
(e) Longer life for your power equipment.

Correct lubrication requires not only high quality lubricants, but carefully selected lubricants. To correctly lubricate your plant, you must use the right lubricant for each specific purpose. Do not let poor lubricants or incorrect lubricants prematurely wear out expensive equipment.

Imperial Lubricants

For Manufacturing, Mining and Milling

Imperial Atlantic Red Engine Oil
Imperial Bayonne Engine Oil
Imperial Standard Gas Engine Oil
Imperial Kearsarge Engine Oil
Imperial Renown Engine and Dynamo Oil
Imperial Solar Red Engine Oil
Imperial Junior Red Engine Oil
Imperial Eldorado Engine Oil
Imperial Capitol Cylinder Oil
Imperial Beaver Cylinder Oil
Imperial Cylinder Oil
Imperial Shield Cylinder Oil
Imperial Ebony Cylinder Oil
Imperial Acme Cylinder Oil
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Our Lubrication Engineers will gladly advise you on anything relating to Lubrication. Write us at 56 Church Street, Toronto. All enquiries will receive prompt attention.

IMPERIAL OIL LIMITED

Power · Heat · Light · Lubrication

BRANCHES IN ALL CITIES



Canadian Carbide

Made in Canada

SOLD THE WORLD OVER

Second to None in

QUALITY, GAS YIELD
AND PACKAGE

Works:
St. Catharines, Ont.
Shawinigan Falls
Que.

MANUFACTURED BY

Canada Carbide Company, Limited
MONTREAL - CANADA

MADE IN
PREMIER
CANADA
GALVANIZED SHEETS

"PREMIER" Galvanized Sheets

Have helped win the war and they are now ready to take a much more important part in building up a happy and prosperous home land.

Every Jobber Sells Them—Every Manufacturer Uses Them—
And every Canadian is glad they're made right here at home

DOMINION SHEET METAL CORPORATION, Limited
HAMILTON, CANADA



THIS man doesn't worry about anyone going through his clothes while he is at work. He knows that all his personal effects are safe.



Our No. 2124 Locker has an open mesh door which allows the air to circulate and ventilates the clothing. You can see the contents of the locker which is often a desirable feature, especially in candy factories.

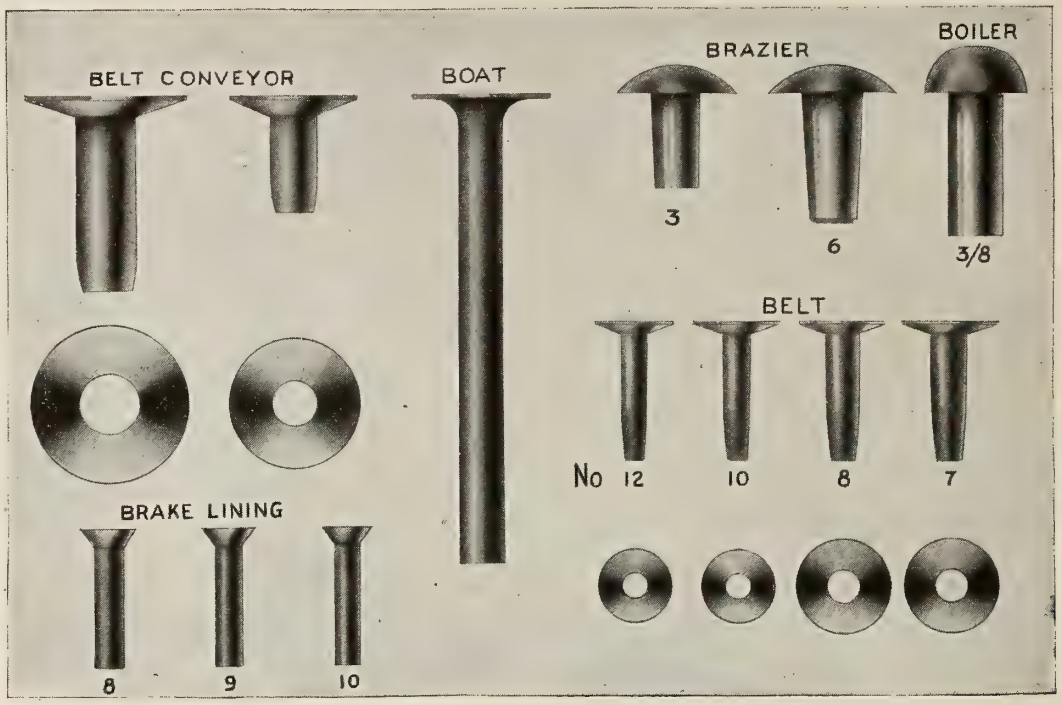
This is the locker for the up-to-date Canadian plant. You will like it.

THE GEO. B. MEADOWS
TORONTO WIRE, IRON & BRASS WORKS CO
LIMITED
TORONTO ——— CANADA

MACHINE SCREWS · STANDARD · COPPER RIVETS

BRASS
BRONZE
STEEL

ROUND
FLAT
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BINDING
BUTTON
WASHER
HEADS
for
IMMEDIATE
SHIPMENT.



BELT
RIVETS
COPPER
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SILVER
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BRAKE
LINING
BRAZIER
BOAT.

THE STOWELL SCREW CO., LIMITED
290 ST. PAUL ST. WEST, - - - - - - MONTREAL

The
Canadian Meter Co., Ltd.

Manufacturers of

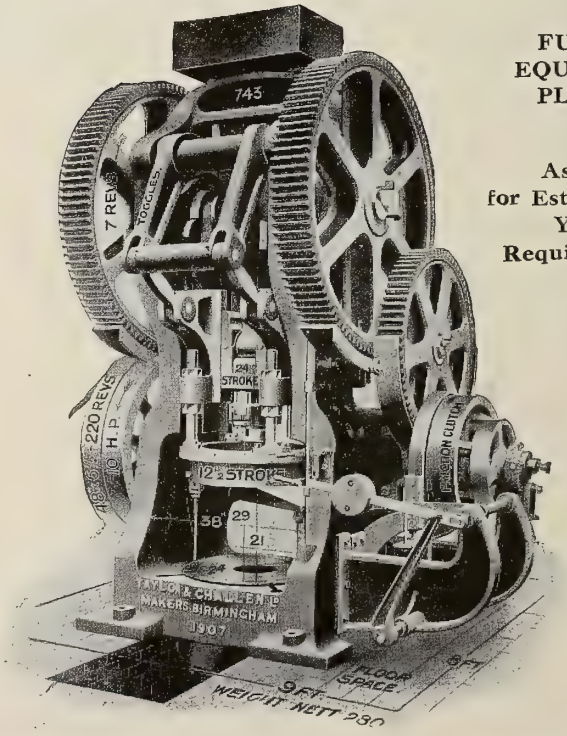
METERS

For Acetylene, Coal, Gasoline
and Natural Gases,
also for Air

Office and Works :
HAMILTON, CANADA
90 CAROLINE ST. N.

METAL STAMPING

SPINNING---ELECTRO PLATING

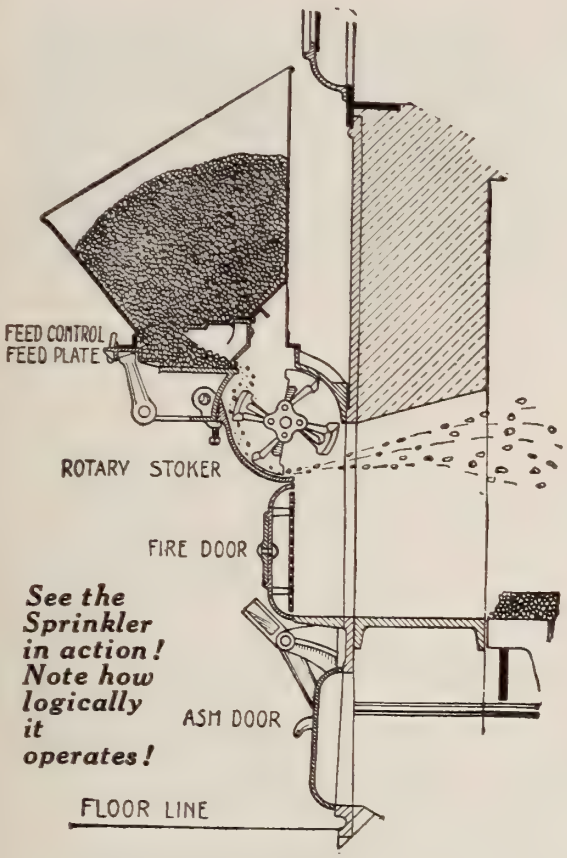


FULLY
EQUIPPED
PLANT

Ask Us
for Estimate on
Your
Requirements

THE WENTWORTH MFG. CO., LTD.
Oak Avenue - - HAMILTON, ONT.

Galt Sprinkler Stoker



See the Sprinkler in action! Note how logically it operates!

JUST A FEW OF OUR CUSTOMERS

R. FORBES CO., LTD., Hespeler, Ont.
First Order, 6 Stokers
Second Order, 10 Stokers

MUNICIPAL HOSPITAL, Winnipeg
First Order, 2 Stokers
Second Order, 5 Stokers

THE T. EATON CO., LIMITED
Winnipeg 12 Stokers

HUDSON'S BAY CO., Vancouver
4 Stokers

PARLIAMENT BUILDINGS,
Edmonton 6 Stokers

ROYAL BANK BUILDING, Toronto
4 Stokers

A SUMMARY OF WHAT IT MEANS TO YOUR PLANT

1. Effects a saving in coal from 10% to 20%.
2. Effects a saving in labor from 25% to 50%.
3. Gives a brilliant, thin, perfectly level fire.
4. Gives smokeless combustion.
5. Increases the boiler capacity.
6. Increases the percentage of CO_2
7. Burns the fuel completely to the finest ash.
8. Operates for years without need of repairs.

WE SUPPLY FORCED DRAFT TURBINES, COAL CRUSHING MACHINERY SHAKING GRATES, PORTABLE CONVEYORS and HIGH-GRADE CASTINGS

Galt Foundry Co., Ltd.
Galt, Ontario
Canada

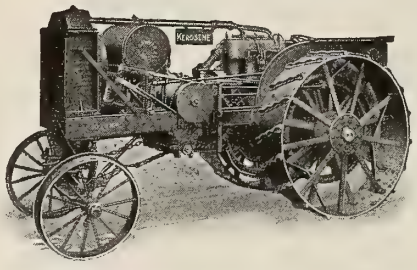


Galt Sprinkler Stokers applied to two 300 H.P. Water Tube Boilers. Since the above photograph was taken Additional Boilers of this Plant have been equipped with Galt Stokers.

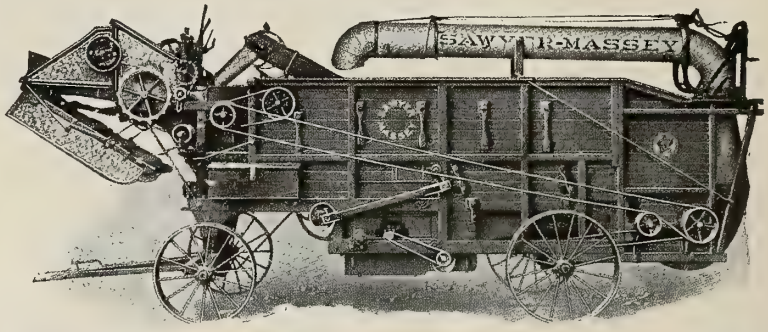
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SAWYER-MASSEY SEPARATORS No. 1 and No. 2—22 in. Cylinder, 36 in. Body, and 28 in. Cylinder, 44 in. Body, shown complete with Feeder and Wind Stacker. NOTE neat appearance and few belts.

If Interested Consult

SAWYER-MASSEY CO., Limited

for Oil and Steam Tractors, Threshing Machinery, or Road Machinery

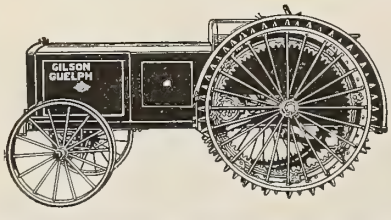
HEAD OFFICE : Hamilton, Canada.

BRANCHES : Winnipeg, Man.; Regina, Sask.; Saskatoon, Sask.; Calgary, Alta. AGENCY : Buenos Aires.

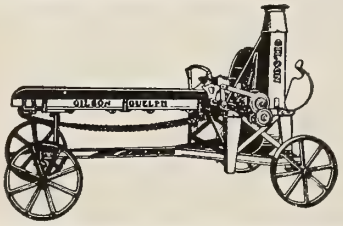
GILSON

TRACTORS—Kerosene and Gasoline
ENGINES—Kerosene and Gasoline
PNEUMATIC FEED CUTTERS—Straw and Ensilage
THRESHERS—For Light or Heavy Power

Dominant in Quality and Service



Gilson Kerosene Tractors are made in three sizes : 10-20 H.P., 12-25 H.P. and 15-30 H.P. They have a remarkable record of satisfactory efficient service.



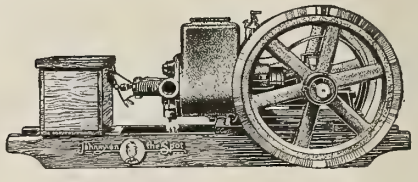
Gilson Pneumatic Feed Ensilage Cutters are made in three sizes with 10 in., 13 in. and 16 in. throats. They are guaranteed to be "The Lightest Running Blower Cutters Made." Power required 5-16 H.P.

Gilson Products

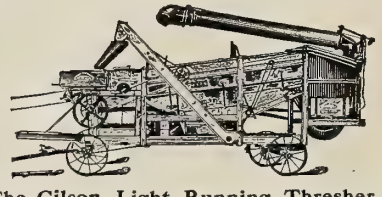
are built for the man who measures value by performance.

Send for Catalogue and prices to-day.

Gilson Mfg. Co., Limited
240 YORK ST.
GUELPH - CANADA



Gilson Engines are made in all sizes from 1¾ to 16 H.P. with any equipment desired.



The Gilson Light Running Thresher is made in three sizes and can be furnished with any equipment desired. Power required 6 to 20 H.P.

Where Jenkins Bros.' Valves are Made

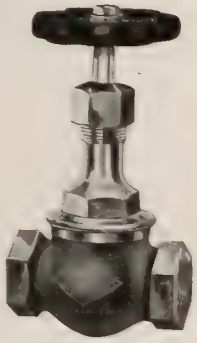


Fig. 106



Factory and Head Office of
JENKINS BROS. LIMITED
Montreal, Canada



Fig. 141

Where plants are scientifically operated, valve value is measured by service rendered, and by yearly ***lack*** of up-keep cost.

If valves break down before other items of equipment, an injustice is done to the entire plant; because valves should last as long as good plant equipment. Good valves do.

Consider—40 per cent. of the Nation's Coal Pile is lost each year by power plants, from their coal investment through poor steam transmission, and from unnecessary labor costs.

JENKINS BROS.' VALVES will keep your plant running and save you money.

A Protection to the User

A steam user who installs Jenkins Bros.' Valves, can do so with the knowledge that he is protected by the maker against defects and imperfections. Our dealers have instructions to replace, without question, any imperfect or defective Jenkins Bros.' Valve returned to them.

Catalogue No. 8 sent free on request.

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Montreal - Canada

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Roofing Felts
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IT is our desire to place in the hands of every motor owner in Canada one of these long-distance oil cans. With this can, the out-of-the-way oiling points are easily reached.

Our idea is to give you something that will constantly remind you of our products — En-ar-co motor oils, White Rose gasoline and others.

Send the coupon. Then give our "quality first" products a try-out. Made in Canada.

CANADIAN OIL COMPANIES Limited
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Toronto, Ont.



Canadian Oil Companies Limited
1249 Excelsior Life Bldg.
Toronto, Ontario

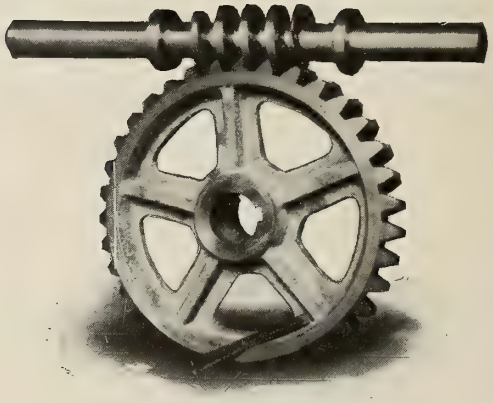
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automobile and enclose two 3-cent stamps. Send me handy oil can FREE. Please give nearest shipping point in this Province, and quote prices on En-ar-co. products. I will be in the market about.....
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Wearing parts for Gyratory Crushers, Dredger Pins and Bushes, etc., etc.

All Alloy Steel Castings, Mining Bar and Rock Drill Steel, Forging Ingots.

Write for prices and particulars.

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BIRD NEPONSET PRODUCTS

The Line Complete

Tried Products for Building Purposes

The period of reconstruction and restoration is at hand. Necessity will demand that building operations be resumed on an even vaster scale than before. Building materials will be urgently needed and the demand for

NEPONSET ROOFINGS

and all other Neponset Products will be even greater than in the past.

Neponset Products are manufactured by Bird & Son, Limited, in the largest and most up-to-date roofing plants in Canada.

In the making of all Neponset Products scientific skill and rigid inspection are the key notes. Neponset Products leave our mills flawless.

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Neponset Paroid Roofing

The ideal roofing for factory buildings, warehouses or barns. A roofing with nineteen years of service to sustain its reputation as the best ready roofing manufactured in Canada.

Neponset Twin Shingles

For roofing all homes. These shingles are made in two colors, red and green, of the same serviceable stock as Paroid. They are not only ideal for roofing your home, but can be used serviceably and with splendid effect on your factory.

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For repairing damaged walls and making partitions. It is the only wall board on the market that requires no further finishing or decorating.

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Mills: Hamilton, Ontario; Pont Rouge, Quebec

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Hosiery and Underwear

FOR

Men, Women and Children

Mercury Natural Wool Underwear is made in different weights to suit different conditions, but all are of the same high quality goods. Business men, manufacturers, doctors and all professional men, who require medium weight, yet warm, comfortable underwear, find that Mercury Underwear meets the need. Workmen in factory or shop—outdoors or indoors—can get the weight they desire.

The Mercury Form-fitting Combinations have the snug Mercury V-shaped neck, shoulder strap inserts, ribbed gusset in closed crotch, and covered seams. Luxurious garments that will give the utmost comfort and service to the whole family.

Mercury Fashioned Seamless Hosiery has achieved wonderful success. This Made-in-Canada hosiery successfully competes with imported lines. Such sightly, shapely, perfect-fitting, durable hosiery was almost unobtainable in Canada until Mercury Mills began yielding their output.

Mercury Hosiery is knitted with a narrow ankle that fits without a wrinkle, a full-fashioned shapely calf, a widened top that gives utmost freedom and comfort—and seamless from toe to top. It is made in cashmere, cotton, mercerized lisle and silk, in all fashionable shades.

Just as much care is taken in the making of men's and children's hosiery, and the same good fit and form results.

MERCURY MILLS LIMITED

HAMILTON - ONTARIO

Imperial Cotton Company

Limited

HAMILTON, CANADA

Manufacturers of

Cotton Duck and Cotton Sail Twine

Cotton Duck in all widths from 4 in. to 72 in., inclusive, and in all weights. Hose and Belting Duck, Filter and Press Cloth, Hydraulic Duck, Tennis and Boot Duck.

"Imperial Extra Watertite"

The best thoroughly waterproof Cotton Duck on the market.

"Imperial Extra Ontarite"

Awning Stripes on Plain Grey and Khaki Base.

J. SPENCER TURNER COMPANY

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Hamilton - Canada

Cosmos Cotton Company

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Manufacturers of

"Yarmouth" Brand Sail and Wide Duck

Cotton Duck in all weights from 8 in. to 122 in., inclusive

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Made in all widths up to and including 240 in.

Cotton Sail, Wrapping and Sewing Twines

"Yarmouth" Army and "Champion" Ounce Duck

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Hamilton - Canada


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COTTONS
In these days of uncertainty, it is a genuine pleasure to know that the name
MAGOG PRINTS
answers every question of quality and assures your customers of fast colors and most satisfactory wear.
When customers ask for material for summer frocks and sport dresses show "MAGOG" PRINTS.
Ask your wholesaler for samples of
—MAGOG PRINTS
—STEELCLAD GALATEAS
—COLONIAL
Cambrics—White Cotton and Summer Underwear—Cloths
DOMINION TEXTILE CO., LIMITED
MONTREAL ∵ TORONTO ∵ WINNIPEG
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GUARANTEED
TEXTILE CO.
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Canada's Largest Cap Makers

Showing the Largest and most varied range of

Cloth and Tweed HATS and CAPS

for

MEN

WOMEN

and

CHILDREN



Eastern Hats and Caps

are sold in

5,000 STORES

from Coast to Coast

Factory and Head Office

TRURO, N.S.

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Sample Rooms at Montreal, Toronto, Winnipeg, Vancouver

THE HOME OF THE

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Made Expressly for the Canadian Climate and Trade



Handled by all Wholesale Dry Goods Jobbers in the Dominion

OUR PRODUCT COMPRISES:

PLAIN and PRINTED LINOLEUMS
BATTLESHIP LINOLEUM
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Penmans

HIGH GRADE KNIT GOODS

THE STANDARD OF EXCELLENCE



HOSIERY—High Grade, seamless, fashioned hose and half hose, in Silk, Cashmere, Wool, Worsted, Lisle, Mercerized and Cotton, for Men, Women and Children.

UNDERWEAR—Ribbed and Flat Knit Underwear, in Cotton, Wool, Union fabrics, in a variety of weights, qualities and finishes, two piece and union suits, for Men, Women and Children.

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Paris, Canada

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Manufacturers of

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Brands "YARMOUTH" and "CHAMPION"

SAIL, WIDE AND OUNCE

PAPER MAKERS' FELTS A SPECIALTY

All widths up to 240 inches

"YARMOUTH" PAPER FELTS ARE UNEXCELLED

INQUIRIES SOLICITED

Sole Selling Agents

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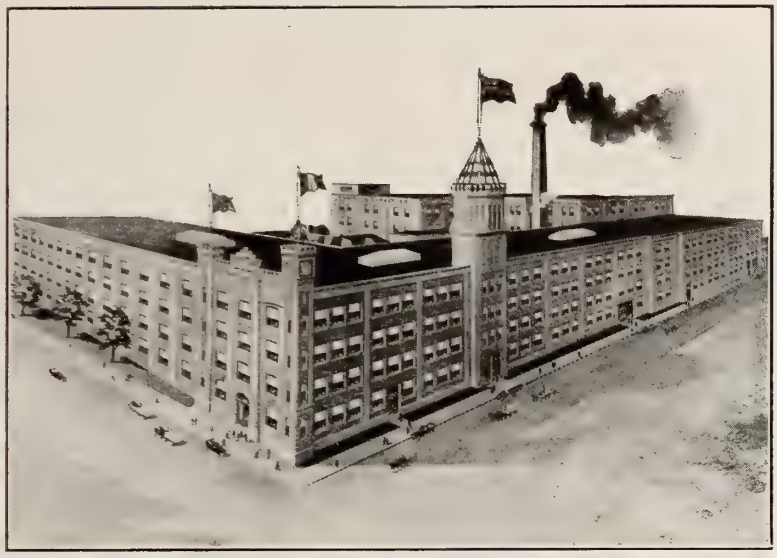
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We call special attention to our new line of Hemp Twine which takes the place of Heavy Jute Twines for warehouse work.

Prompt Delivery ***Attractive Prices***

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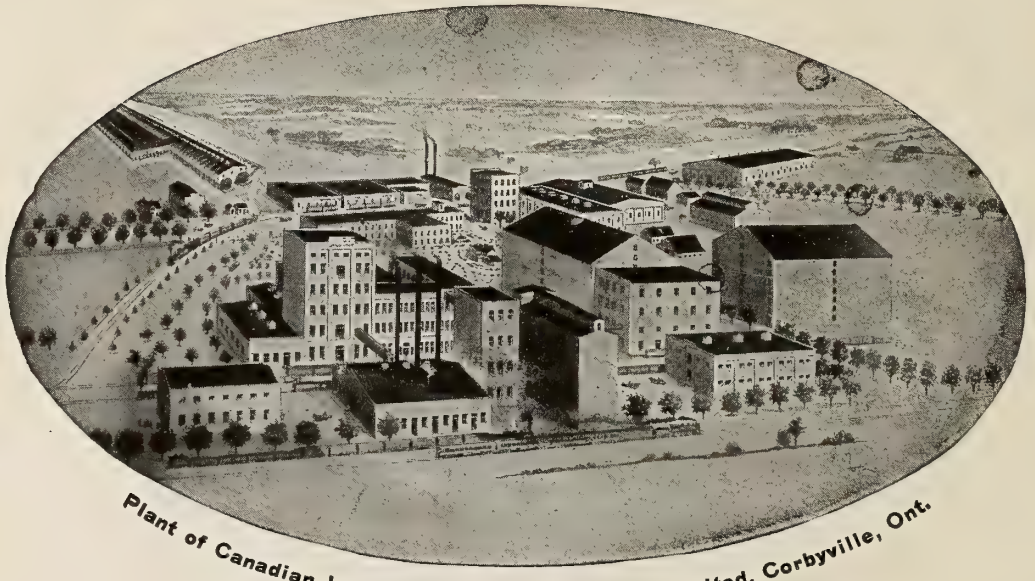


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Established in 1886, in a very humble way the Dominion Corset Company has grown to be the largest corset industry in the British Empire. Almost two thousand employees produce the 9,600 pairs of corsets daily, which are marketed chiefly under the trade names "D & A", "La Diva", and "Goddess" corsets.

The Dominion Corset Company markets its corsets not only in Canada, but has established a successful export trade in Australia, New Zealand, Newfoundland, France, England, South Africa, Argentine Republic, Uruquay, Trinidad, Dominican Republic, Danish Indies, British Indies, Paraquay and Mexico.

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Plant of Canadian Industrial Alcohol Company Limited, Corbyville, Ont.

With a capacity of 450,000 (proof) gallons per month we are the largest producers of Alcohol in Canada.

Manufacturers of vinegar, perfumes, essences, pharmaceutical preparations, etc.; are invited to write us for prices of Alcohol suitable for their particular line of business.

We make a special feature of contracting for the requirements of manufacturers for the year or season, thus providing not only a uniform cost but also a steady supply as needed.

Those who are using Duty Paid Alcohol in their manufacturing processes would do well to consult us with a view to using it "In Bond," thus avoiding the use of two-year-old Alcohol. Under the rules and regulations of the Department of Inland Revenue, newly made Alcohol may be used "In Bond." This Alcohol is much cheaper than two-year-old.

METHYLATED SPIRITS or Denatured Alcohol is sold only by the Department of Inland Revenue, Ottawa, Ont., but any other kind of Alcohol may be secured from us.

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The Seal That Guarantees You the Best in Gypsum Products



"Pillar Brand" Plasters are manufactured from the highest grade Nova Scotia Gypsum Rock, and are fathered by science and experience in the making. Our

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Moulding Plaster
Dental Plaster

are made from specially selected rock particularly suited for the manufacture of these high-grade Plasters.

"PILLAR BRAND" HARDWALL PLASTER
"The Plaster that Lasts"

has wonderful spreading qualities and is mixed only with the best grade of goat and cattle hair, thoroughly washed and specially prepared.

Facilities for shipment by rail or water.
Inexhaustible supply of high-grade Gypsum Rock.
Specially situated to handle foreign shipments.

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The Iona Gypsum Company, Limited
Head Office and Plant: IONA, NOVA SCOTIA, CANADA

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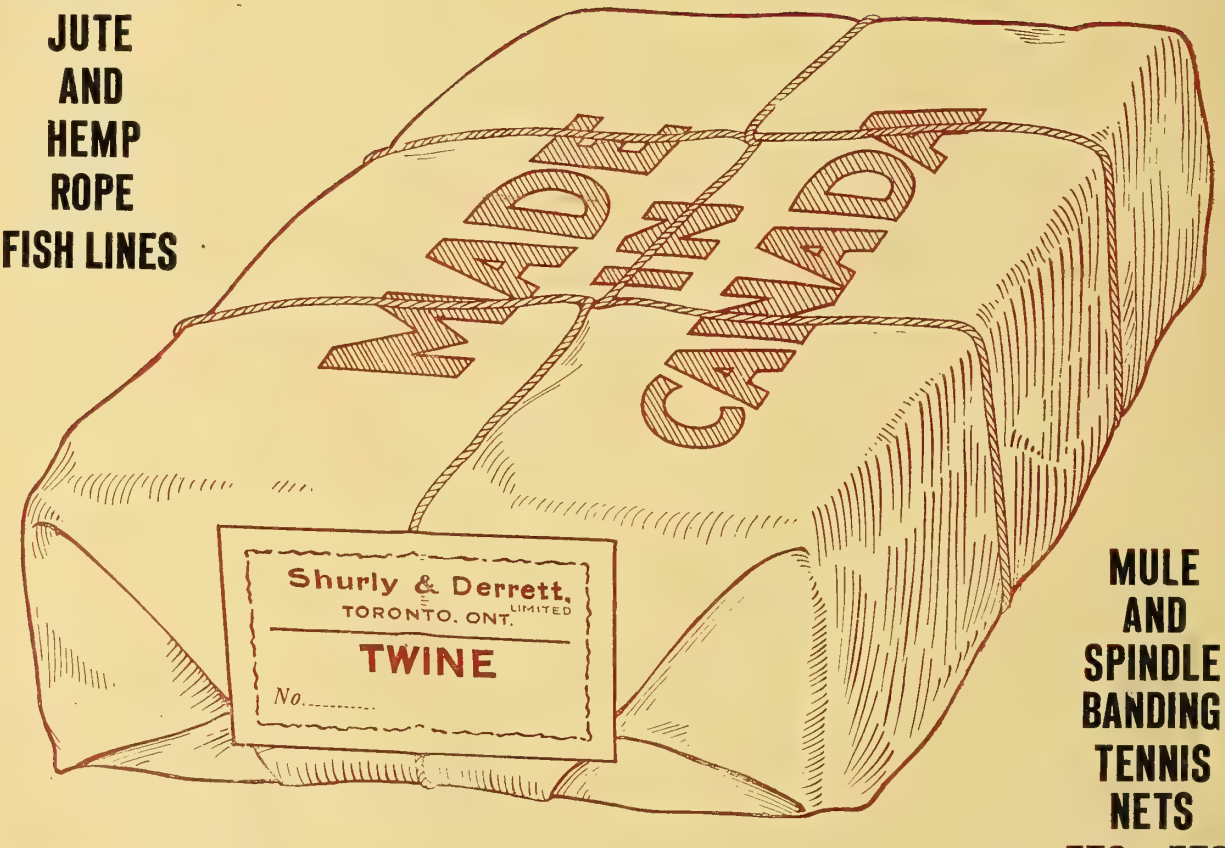
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MULE
AND
SPINDLE
BANDING
TENNIS
NETS
ETC., ETC.

Look for this Package

National Problems of Canada Discussed at the Annual Meeting of the Bank of Montreal

Sir Vincent Meredith, President, Dealt with the Difficult Problems of Increased Taxation—Bank will open Branch in Paris, France—Sir Frederick Williams-Taylor, General Manager, Pointed Out That there Never Was a Time When Country Was More in Need of a Sane Financial Policy.

The annual meeting of the Bank of Montreal, held at the Head Office, took on many of the features of a national gathering.

The Bank, by its position, had played a principal part in directing the country throughout the trying conditions of the war period and at the meeting Sir Vincent Meredith, the President, and Sir Frederick Williams-Taylor, the General Manager, took up the problems that Canada must necessarily face during the post-bellum period. The addresses at the Bank of Montreal annual always have a special bearing on the events of the day, but this year, perhaps more than ever before, they contained references of the utmost interest and benefit to every business man in Canada.

Everywhere there prevailed a strong belief that Canada was in an excellent position to grapple with the difficulties of the period of readjustment.

Problems of Canada.

Sir Vincent Meredith, the President, dealt particularly with the problems immediately ahead of the country. The most important, Sir Vincent pointed out, was how the country was to meet the interest on the vast debt of possibly $1,800,000,000 which would exist after the war. Increased production would relieve the country of a portion of its burden and this, with strict economy and growing population, would in time adjust the difficulties of the country.

Taxation cannot easily be lessened and may be increased, added Sir Vincent. A levy on capital, advocated in some quarters, must only result in the stifling of individual incentive and enterprise and the penalizing of industry, self-denial and thrift. Taxing capital to the point of unemployment in industrial enterprise would involve unemployment of labor and produce serious consequences. If placed principally on consumption, the burden of taxation is distributed.

The New Conditions.

With the cessation of hostilities, the cancellation of munitions contracts has begun and the adaptation of war industries to peace conditions will doubtless bring about a check with possible dislocation of business but these adverse factors should prove transitory.

If Canada is to share in the business opportunities during the period of reconstruction, the banks must stand ready to arrange liberal and probably long term lines of credit providing the necessary funds from their own resources or availing themselves of rediscount with the Dominion Government.

As the war ends, all signs point to a great demand for capital for reconstruction, refunding and replacement purposes and interest rates in consequence will in all probability rule high for some time to come.

With particular reference to the affairs of the Bank, Sir Vincent announced that the distribution to the shareholders would now take the form of a straight dividend of 12 p.c. per annum, instead of a dividend of 10 per cent. and a bonus of 2 per cent. With a view of enabling Canada to be closely in touch with the affairs in France during the period of reconstruction, the Bank was also making arrangements for the opening of a branch in Paris.

"The business of the Bank has been well maintained during the year. In view of possible Government financing and the somewhat uncertain outlook at home and abroad, we have consistently set our faces against over-expansion, which is to be deprecated under existing conditions. While giving our customers all reasonable accommodation required, and taking up many new desirable accounts, we have maintained a strong liquid position, continuing a well considered policy of the Bank; a policy which in the past as now, has added materially to the Bank at home and abroad and of Canadian finance generally.

Change Policy Slightly.

"The question of opening branches in foreign countries to participate in the business that may arise in connection with reconstruction requirements abroad, is one that has received considerable attention from your directors. Following the policy of many English banks, we have deemed it prudent to refrain from establishing branches at points far afield where Canadian capital would be required in local and possible competitive industries, preferring rather to strengthen and extend our relations with foreign banking houses and to retain their good-will, thereby conserving our resources for the assistance and encouragement of home trade. In this connection it may be well to mention that we propose presently to establish an agency of the Bank in Paris, not for the purpose of loaning Canadian funds, but to supply necessary banking facilities to Canadians travelling abroad and to further the interests of Canada generally in France.

"We shall undoubtedly for some years have to pay in relatively high taxation the price of our devotion and patriotism, but I am confident this will be done uncomplainingly, in the belief that all present and prospective difficulties can and will be overcome."

Sane Financial Policy.

Sir Frederick Williams-Taylor, the General Manager, dealt more especially with the growth and development of the business of the Bank and financial conditions in the principal centres of the world. Sir Frederick pointed out that there never was a time when Canada was more in need of sound economic thinking and a sane financial policy as at present.

With the acquisition of the Bank of British North America, the resources of the Bank now totalled $558,413,546, of which $34,468,283 belonged to the shareholders and $523,945,262 was entrusted to the care of the Bank by the public. It was worthy of note that the Bank's total assets are now as great as were the combined total assets of all the Canadian Chartered banks seventeen years ago.

Stood Strain Well.

"The ease with which financial Canada has met the stress of war condition has been favorably commented upon abroad. At home one hears no expression of surprise at the stable financial conditions in the Dominion.

"The real basis of that stability is a banking system that has proved most efficient in peace times and, with the facilities accorded by the Minister of Finance, has withstood the severe test of war times. The system as it stands is without doubt adequate to meet any possible demands arising during the reconstruction period and for many years thereafter.

Conditions in U.S. Will Help Canada.

"After passing through the inevitable period of economic confusion which all countries must endure, that country of boundless wealth and virility, the United States, the only great power, by the way, to emerge from the war better off financially, may probably enter upon an area of unprecedented expansion and development. Canada must share in such prosperity independently of the part we hope to take in supplying Europe's reconstruction and regular demands. Meanwhile, there never was a time when our country was more in need of sound economic thinking and sane financial policy.

"Our New York and London Offices have been invaluable channels for international transactions during the war.

"In London, the important banking events of the year have been a series of bank amalgamations, regarded by those competent to judge as wise preparation for foreign trade competition after the war.

"The Dominion has been penalized during the past year by a heavy premium on New York funds. This new condition is a matter of wide-spread interest.

"In theory, there are four ways in which this onerous penalty can be removed; by increased exports; by reduced imports; by paying in gold; or, by borrowing in outside markets. None of these remedies is at hand, but with the return of peace, Canada should at least be able to float public loans in New York. Then also we can hope for better things so far as imports and exports are concerned. Also there is on balance a large amount owing our Government by the Imperial Government and $200,000,000 is owing the Banks of Canada by the Imperial Government, representing wheat and munitions purchases. In due course these combined amounts will aid the exchange situation. The premium in question should, therefore, diminish sooner or later to a point that will be immaterial."

BANK OF HAMILTON

Head Office, HAMILTON

Capital Paid Up..... $3,000,000 **Reserve and Undivided Profits..... $3,500,000**

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Sir John Hendrie, K.C.M.G., C.V.O., President.
Cyrus A. Birge, Vice-President.

C. C. Dalton.	**Robt. Hobson.**	**W. E. Phin.**
I. Pitblado, K.C.	**J. Turnbull.**	**W. A. Wood.**

RECORD OF PROGRESS—Statement to the Dominion Government (condensed) on October 31st.

ASSETS.	1917.	1918.
Cash on hand and in Banks, etc.	$18,578,424	$11,521,794
Call Loans	2,570,204	2,651,883
Government Bonds, Debentures and Investments	12,992,247	13,248,275
Loans to Municipalities	1,441,958	1,416,868
Other Loans and Discounts	30,099,163	42,046,173
Premises, Real Estate, Mortgages and other Assets	2,879,293	3,476,341
Liabilities of Customers under Letters of Credit, as per contra	33,613	192,902
	$68,594,902	$74,554,236

LIABILITIES.	1917.	1918.
Circulation	$5,615,666	$5,288,261
Government Balances	316,806	4,702,263
Bank Balances	204,841	1,460,528
Deposits	55,914,419	56,333,240
Acceptances under Letters of Credit, as per contra	33,613	192,902
To the Shareholders—		
Capital, Paid-up	3,000,000	3,000,000
Reserve and Surplus Profits	3,509,557	3,577,042
	$68,594,902	$74,554,236

J. P. BELL, General Manager.

Is Your Business Outgrowing Your Banking Accommodations?

MANY prosperous business enterprises desire additional capital for one or more of the following purposes;

1. To increase plant capacity and finance a rapidly growing business.
2. To retire bonds or other indebtedness.
3. To acquire additional properties, etc.

While large business enterprises are able to secure capital without difficulty, the manufacturer who needs less than $500,000 usually faces one of the two following alternatives: (A) Relinquishing stock control or (B) Paying exorbitant commissions.

Both of these conditions are avoided by our plan of underwriting an Industrial Bond or Stock Issue.

We underwrite securities of Canadian Industrial Corporations which meet our requirements as to Earnings and Management, and market them quickly and economically.

Full information upon request.

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TORONTO GENERAL TRUSTS BUILDING, TORONTO

THE ROYAL BANK OF CANADA

INCORPORATED 1869

HEAD OFFICE -:- MONTREAL

Capital Authorized $25,000,000 **Reserve Funds $15,500,000**

Capital Paid-Up $14,000,000 **Total Assets $427,000,000**

BOARD OF DIRECTORS

SIR HERBERT S. HOLT, President. E. L. PEASE, Vice-Pres. and Managing Director.
E. F. B. JOHNSTON, K.C., 2nd Vice-President.

JAS. REDMOND, G. R. CROWE, D. K. ELLIOTT, HON. W. H. THORNE, HUGH PATON,
WM. ROBERTSON, A. J. BROWN, K.C., W. J. SHEPPARD, C. S. WILCOX, A. E. DYMENT,
C. E. NEILL, SIR MORTIMER B. DAVIS, G. H. DUGGAN, C. C. BLACKADAR, JOHN T. ROSS,
R. MacD. PATERSON, W. H. McWILLIAMS.

C. E. NEILL .....General Manager E. L. PEASE..... Managing Director
F. J. SHERMAN .....Asst. Gen. Manager M. W. WILSON .....Supt. of Branches

Statement to the Dominion Government (Condensed), November 30, 1918

LIABILITIES.

Capital Paid Up	$14,000,000.00
Reserve Fund	15,000,000.00
Undivided Profits	535,757.19
Dividend No. 125, payable December 2, 1918	420,000.00
Notes in Circulation	39,380,975.74
Deposits	341,601,840.87
Due to other Banks	6,095,721.12
Bills Payable (Acceptances by London Branch)	316,058.43
Acceptances under Letters of Credit	10,162,629.56
	$427,512,982.91

ASSETS.

Cash on Hand and in Banks	$83,235,138.22
Deposit in the Central Gold Reserves	26,000,000.00
Government and Municipal Securities	66,220,862.27
Railway and other Bonds, Debentures and Stocks	15,084,414.64
Call Loans in Canada	10,067,481.94
Call Loans elsewhere than in Canada	24,374,191.40
	$224,982,088.47
Loans and Discounts	$183,864,338.79
Liabilities of Customers under Letters of Credit, as per contra	10,162,629.56
Bank Premises	6,492,011.85
Real Estate other than Bank Premises	1,171,131.69
Mortgages on Real Estate sold by the Bank	97,963.80
Deposit with Dominion Government for Security of Note Circulation	742,818.75
	$427,512,982.91

530 Branches

471 BRANCHES IN CANADA AND NEWFOUNDLAND

194 in Ontario and Quebec 78 in Maritime Provinces
152 in Central West 41 in British Columbia
6 Branches in Newfoundland.

56 BRANCHES IN WEST INDIES, CENTRAL AND SOUTH AMERICA.

26 in Cuba 13 in British West Indies
3 in Porto Rico 3 in British Guiana
5 in Dominican Republic 1 in British Honduras
4 in Venezuela 1 in Costa Rica

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A General Banking Business Transacted

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A List of plants in your locality, as well as a complete List of railways, all of whom can be used as reference, will be furnished on request.

Dearborn Chemical Company of Canada Limited

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Branch Offices—WINNIPEG AND MONTREAL

THE CANADIAN BANK OF COMMERCE

STATEMENT OF THE RESULT OF THE BUSINESS OF THE BANK FOR THE YEAR ENDING 30th NOVEMBER, 1918

Balance at credit of Profit and Loss Account brought forward from last year		$1,332,074 52
Amount recovered from over-appropriations		1,000,000 00
Net Profits for the year ending 30th November, after providing for all bad and doubtful debts		2,850,318 16
		$5,182,392 68
This has been appropriated as follows:		
Dividends Nos. 124, 125, 126 and 127, at ten per cent. per annum		$1,500,000 00
Bonus of one per cent., payable 1st June		150,000 00
do. do. do. 1st December		150,000 00
War tax on banknote circulation to 30th November		150,000 00
Transferred to Pension Fund		85,000 00
Reserved for the cost of a proposed memorial to officers of the Bank who served in the great war, and of a history of the Bank		100,000 00
Transferred to Rest Account		1,500,000 00
Subscriptions:		
Canadian Patriotic Fund	$50,000 00	
Halifax Relief Fund	25,000 00	
The Navy League of Canada	10,000 00	
Y.M.C.A. Red Triangle Fund	10,000 00	
Sundry subscriptions	7,550 00	
		102,550 00
Balance carried forward		1,444,842 68
		$5,182,392 68

GENERAL STATEMENT—30th November, 1918

LIABILITIES.

To the Public—			
Notes of the Bank in circulation			$31,583,694 68
Deposits not bearing interest	$151,010,570 57		
Deposits bearing interest, including interest accrued to date	202,148,245 47		
		353,158,816 04	
Balances due to other Banks in Canada			104,106 35
Balances due to Banks and Banking Correspondents elsewhere than in Canada			10,322,592 58
Bills Payable			118,347 00
Acceptances under Letters of Credit			13,048,927 03
			$408,336,483 68
To the Shareholders—			
Dividends Unpaid			4,376 86
Dividend No. 127 and bonus, payable 1st December			525,000 00
Capital Paid up	$15,000,000 00		
Rest Account	15,000,000 00		
Balance of Profits as per Profit and Loss Account	1,444,842 68		
		31,444,842 68	
			$440,310,703 22

ASSETS.

Gold and Silver Coin Current on hand	$15,686,046 24		
Gold deposited in Central Gold Reserves	6,500,000 00	$22,186,046 24	
Dominion Notes on hand	$28,785,117 25		
Dominion Notes deposited in Central Gold Reserves	11,000,000 00	39,785,117 25	$61,971,163 49
Notes of other Banks		$2,293,472 00	
Cheques on other Banks		15,701,358 67	
Balances due by other Banks in Canada		100 62	
Balances due by Banks and Banking Correspondents elsewhere than in Canada		8,267,187 82	
			26,262,119 11
Dominion and Provincial Government Securities, not exceeding market value			36,165,259 20
British, Foreign and Colonial Public Securities and Canadian Municipal Securities			29,884,242 13
Railway and other Bonds, Debentures and Stocks, not exceeding market value			6,018,039 70
Call and Short Loans (not exceeding 30 days) in Canada on Bonds, Debentures and Stocks			13,843,130 58
Call and Short Loans (not exceeding 30 days) elsewhere than in Canada			28,018,919 10
Deposit with the Minister of Finance for the purposes of the Circulation Fund			856,108 55
			$203,018,981 86
Other Current Loans and Discounts in Canada (less rebate of interest)			199,672,294 63
Other Current Loans and Discounts elsewhere than in Canada (less rebate of interest)			17,617,641 44
Liabilities of Customers under Letters of Credit, as per contra			13,048,927 03
Overdue Debts (estimated loss provided for)			103,320 80
Real Estate other than Bank Premises (including the unsold balance of former premises of the Eastern Townships Bank)	$1,150,347 84		
Less balance of mortgage assumed	32,307 04		
			1,118,040 80
Mortgages on Real Estate sold by the Bank			237,681 64
Bank Premises at cost, less amounts written off			5,344,500 04
Other Assets not included in the foregoing			149,314 98
			$440,310,703 22

B. E. WALKER, President. JOHN AIRD, General Manager.

Report of the Auditors to the Shareholders of The Canadian Bank of Commerce:

In accordance with the provisions of subsections 19 and 20 of section 56 of The Bank Act, 1913, we report as follows:

We have audited the above Balance Sheet and compared it with the books and vouchers at Head Office and with the certified returns from the branches. We have obtained all the information and explanations that we have required, and are of the opinion that the transactions of the Bank which have come under our notice have been within the powers of the Bank.

We have checked the cash and verified the securities representing the investments of the Bank at its chief office and principal branches at a date other than, and in addition to, the verification at 30th November, 1918, and found that they were in agreement with the entries in the books of the Bank relating thereto.

In our opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Bank according to the best of our information and the explanations given to us, and as shown by the books of the Bank.

T. HARRY WEBB, C.A., of Webb, Read, Hegan & Co.
JAMES MARWICK, C.A., of Marwick, Mitchell, Peat & Co. } Auditors.

Rutherford Williamson, C.A. J. D. Wallace, C.A. A. J. Walker, C.A

RUTHERFORD WILLIAMSON & CO.

Chartered Accountants, Auditors, Liquidators Trustees, Cost Accountants and Income Tax Consultants

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Member, The Institution of Civil Engineers

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Member, The Engineering Institute of Canada
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THE MERCHANTS BANK OF CANADA

Comparative Statement of Assets and Liabilities as at October 31st, 1918, and October 31st, 1917.

ASSETS

	October, 1918	October, 1917
Current Coin	$4,742,677.00	$4,727,688.00
Deposit in the Central Gold Reserves	8,500,000.00	6,500,000.00
Dominion Notes	7,418,910.00	5,319,739.00
Notes of other Banks		
Cheques on other Banks	7,085,185.00	6,665,575.00
Balances due by other Banks in Canada	2,635.00	2,796.00
Balances due by Banks and banking correspondents in the United Kingdom	144,769.00	158,570.00
Balances due by Banks and banking correspondents elsewhere than in Canada and the United Kingdom	1,246,844.00	1,541,145.00
Dominion and Provincial Government securities, not exceeding market value.	16,390,464.00	8,562,507.00
Railway and other Bonds, Debentures and Stocks, not exceeding market value	3,933,373.00	3,995,252.00
Canadian Municipal Securities, and British, Foreign and Colonial public securities other than Canadian	15,167,644.00	9,081,764.00
Call Loans in Canada on Bonds, Debentures and Stocks	4,916,574.00	5,682,431.00
Call Loans elsewhere than in Canada	2,899,198.00	3,277,614.00
Current Loans and Discounts in Canada (less Rebate of Interest)	86,029,341.00	68,070,191.00
Current Loans and Discounts elsewhere than in Canada (less Rebate of Interest)	345,398.00	364,122.00
Liabilities of customers under letters of credit as per contra	418,006.00	630,754.00
Real Estate other than bank premises	333,872.00	303,434.00
Overdue debts, estimated loss provided for	350,807.00	279,899.00
Bank premises, at not more than cost, less amount written off	5,218,862.00	4,755,215.00
Deposit with the Minister for the purpose of the Circulation Fund	366,000.00	355,000.00
Other Assets not included in the foregoing	413,870.00	294,947.00
	$165,924,436.00	$130,568,653.00

LIABILITIES

Notes of the Bank in Circulation	$15,180,243.00	$13,462,863.00
Deposits, Demand	27,246,680.00	27,360,064.00
Deposits bearing interest	105,694,900.00	69,997,555.00
Balances due to other Banks in Canada	1,932,303.00	682,899.00
Balances due to Banks and banking correspondents in the United Kingdom and foreign countries	74,515.00	3,381,392.00
Bills Payable		
Acceptances under letters of credit	418,006.00	630,754.00
Dividends declared and unpaid	177,280.00	176,082.00
Liabilities not included in the foregoing		

K. W. BLACKWELL, *Vice-President.*

E. F. HEBDEN, *Managing Director.*

D. C. MACAROW, *General Manager.*

THE CANADIAN APPRAISAL COMPANY

Limited

This is a year when Plant Values and Depreciation will receive greater attention than ever at the hands of the Manufacturer, especially when dealing with questions of Insurance and Cost Accounting. It is important that all values should be determined correctly on a sound, provable basis, by means of an Appraisal, as original costs or book values are quite unreliable to-day for most purposes.

"Canadian Appraisals" definitely establish property values to meet all requirements of modern business. The Canadian Appraisal Company having appraised several thousand properties of every description throughout the Dominion, has a thorough knowledge of Canadian conditions, and with its large well trained field and office staff is in a position to carry out any commission entrusted to it promptly and efficiently whether in Canada or elsewhere.

Representative Properties Appraised By This Company.

	No. of Properties
Acadia Coal Company	4
Acadia Sugar Refining Company	2
Algoma Steel Corporation	1
Ames-Holden-McCready, Limited	3
Anglo-Canadian Leather Company	2
Bank of Hamilton	36
Belding-Paul-Corticelli, Limited	3
Berliner Gram-O-Phone Co.	1
Booth, J. R.	1
Canada Bread Company	6
Canada Cement Company	11
Canada Foundries and Forgings, Limited	3
Canada Furniture Manufacturers, Limited	11
Canada Iron Foundries	4
Canada Machinery Corporation	5
Canada Malting Company	5
Canada Starch Company	2
Canada Steamship Lines	Various
Canada Sugar Refining Co.	2
Canadian Bank of Commerce	74
Canadian Car and Foundry Company	4
Canadian Consolidated Felt Company	1
Canadian Consolidated Rubber Company	10
Canadian Converters' Company	3
Canadian General Electric Company	9
Canadian Locomotive Company	1
Canadian Steel Foundries, Limited	4
Canadian Salt Company	2
Chicoutimi Pulp Company	2
Collingwood Shipbuilding Company	1
Corby, H., Distillery Company	1
Cowan Co.	1
Davidson, Thomas, Manufacturing Co.	1
Davies, William, Company	4
Dominion Bridge Company	1
Dominion Canners, Limited	62
Dominion Glass Company	5
Dom. Manufacturers, Limited (Caskets)	7
Dominion Realty Company	300
Dominion Sugar Company	3
Dominion Textile Company	10
Dunlop Tire & Rubber Goods Company	1
Eddy, E. B. Company	2
Edwards, W. C. and Company	4
Frost & Wood Company	1
Goldie & McCulloch Company	2
Gordon, Ironside & Fares Company	10
Gutta Percha and Rubber Company	1
Hamilton Bridge Works	2
Inglis, John, Co.	1
Lake of the Woods Milling Company	66

	No. of Properties
Laurentide Company	1
Lyall, Peter, & Sons Construction Co.	1
Macdonald Company, Limited, The A.	10
Maisonneuve, City of	Various
Manitoba Bridge and Iron Works	1
Maple Leaf Milling Company	9
Massey-Harris Company, Limited	1
Matthews-Blackwell, Limited	5
Matthews and Scott	3 fisheries
Merchants Bank	39
Monarch Knitting Company	4
Murray-Kay, Limited	2
McClary Mfg. Company	10
National Breweries, Limited	8
National Brick Company of Laprairie	1
National Iron Works, Limited	1
New Brunswick Telephone Company	Various
Nova Scotia Steel & Coal Co.	2
Ogilvie Flour Mills Company, Limited	4
Ontario Steel Products, Limited	3
Page-Hersey I. T. & L. Co.	3
Pedlar People, Limited	1
Phoenix Bridge and Iron Works	1
Polson Iron Works	1
Provincial Paper Mills	4
Province of Manitoba	Various
Rat Portage Lumber Company, Limited.	4
Riordon Pulp and Paper Company	1
Rolland and Paper Company, Limited.	2
Royal Bank of Canada	58
Sawyer-Massey Company, Limited	1
Shawinigan Water and Power Company.	1
Sherwin-Williams Company of Canada.	9
St. Lawrence Sugar Refining Company.	1
Stand. Chem., Iron & Lumber Company.	12
Standard Clay Products, Limited	2
Steel Company of Canada	6
Steel and Radiation, Limited	3
Tooke Brothers, Limited	2
Toronto Paper Manufacturing Company.	1
Tuckett Tobacco Company	3
Union Bank of Canada	110
Union Lumber Company, Limited	39
Vaudreuil Dairy and Stock Farm	1
Vulcan Iron Works, Limited	1
Walker, Hiram, & Sons, Limited	1
Western Canada Flour Mills Company.	6
Woods Mfg. Co.	5

WRITE FOR FURTHER INFORMATION

TORONTO
ROYAL BANK BLDG.

HEAD OFFICE, 17 ST. JOHN ST.
MONTREAL

NEW YORK
EQUITABLE BLDG.

The Royal Bank of Canada

General Statement

30th November, 1918

LIABILITIES

To the Public:		
Deposits not bearing interest	$135,243,278 72	
Deposits bearing interest, including interest accrued to date of statement	197,348,439 20	
		$332,591,717 92
Notes of the Bank in Circulation		39,380,975 74
Balance due to Dominion Government		9,000,000 00
Balances due to other Banks in Canada	$26,794 90	
Balances due to Banks and Banking Correspondents in the United Kingdom and foreign countries	6,068,926 22	
		6,095,721 12
Bills Payable		316,058 43
Acceptances under Letters of Credit		10,162,629 56
		$397,547,102 77
To the Shareholders:		
Capital Stock Paid in		14,000,000 00
Reserve Fund	$15,000,000 00	
Balance of Profits carried forward	535,757 19	
		15,535,757 19
Dividend No. 125 (at 12 per cent. per annum), payable December 2nd, 1918	420,000 00	
Dividends Unclaimed	10,122 95	
		430,122 95
		$427,512,982 91

ASSETS

Current Coin	$17,488,314 07	
Dominion Notes	24,636,344 75	
	$42,124,658 82	
Deposit in the Central Gold Reserves	26,000,000 00	
Notes of other Banks	10,678,020 86	
Cheques on other Banks	20,034,899 30	
Balances due by other Banks in Canada	6,042 80	
Balances due by Banks and Banking Correspondents elsewhere than in Canada	10,391,516 44	
Dominion and Provincial Government Securities, not exceeding market value	36,599,976 37	
Canadian Municipal Securities and British, Foreign and Colonial Public Securities other than Canadian, not exceeding market value	29,620,885 90	
Railway and other Bonds, Debentures and Stocks, not exceeding market value	15,084,414 64	
Call Loans in Canada, on Bonds, Debentures and Stocks	10,067,481 94	
Call and Short (not exceeding thirty days) Loans elsewhere than in Canada	24,374,191 40	
		$224,982,088 47
Other Current Loans and Discounts in Canada (less rebate of interests)	$119,184,715 26	
Other Current Loans and Discounts elsewhere than in Canada (less rebate of interest)	64,175,163 85	
Overdue Debts (estimated loss provided for)	388,513 29	
		183,748,392 40
Real Estate other than Bank Premises		1,171,131 69
Bank Premises, at not more than cost, less amounts written off		6,492,011 85
Liabilities of Customers under Letters of Credit, as per contra		10,162,629 56
Deposit with the Minister for the purposes of the Circulation Fund		742,818 75
Other Assets not included in the foregoing		213,910 19
		$427,512,982 91

H. S. HOLT, President. EDSON L. PEASE, Managing Director. C. E. NEILL, General Manager.

AUDITORS' CERTIFICATE.

WE REPORT TO THE SHAREHOLDERS OF THE ROYAL BANK OF CANADA:

That in our opinion the transactions of the Bank which have come under our notice have been within the powers of the Bank.

That we have checked the cash and verified the securities of the Bank at the Chief Office at 30th November, 1918, as well as at another time, as required by Section 56 of the Bank Act, and that we found they agreed with the entries in the books in regard thereto. We also during the year checked the cash and verified the securities at the principal branches.

That the above Balance Sheet has been compared by us with the books at the Chief Office and with the certified returns from the Branches, and in our opinion is properly drawn up so as to exhibit a true and correct view of the state of the Bank's affairs according to the best of our information and the explanations given to us and as shown by the books of the Bank.

That we have obtained all the information and explanations required by us.

Montreal, Canada, 18th December, 1918.

JAMES MARWICK, C.A.,
S. ROGER MITCHELL, C.A., of Marwick, Mitchell, Peat and Co.
J. W. ROSS, C.A., of P. S. Ross & Sons.
} Auditors.

PROFIT AND LOSS ACCOUNT

Balance of Profit and Loss Account, 30th November, 1917	$564,264 53	
Profits for the year, after deducting charges of management and all other expenses, accrued interest on deposits, full provision for all bad and doubtful debts and rebate of interest on unmatured bills	2,809,846 24	
		$3,374,110 77
Appropriated as follows:		
Dividends Nos. 122, 123, 124 and 125, at 12 per cent. per annum	$1,614,702 00	
Transferred to Officers' Pension Fund	100,000 00	
Written off Bank Premises Account	400,000 00	
War Tax on Bank Note Circulation	133,651 58	
Contribution to Patriotic Funds	40,000 00	
Contribution to Halifax Relief Fund	50,000 00	
Transferred to Reserve Fund	500,000 00	
Balance of Profit and Loss carried forward	535,757 19	
		$3,374,110 77

RESERVE FUND

Balance at Credit 30th November, 1917	$14,000,000 00
Premium on New Capital Stock issued to Northern Crown Bank Shareholders	500,000 00
Transferred from Profit and Loss Account	500,000 00
Balance at Credit 30th November, 1918	$15,000,000 00

H. S. HOLT, President. EDSON L. PEASE, Managing Director. C. E. NEILL, General Manager.

Montreal, 18th December, 1918.

BANK OF MONTREAL

Established over 100 Years

Capital Paid Up - - $16,000,000
Rest - - - $16,000,000
Undivided Profits, $1,901,613
Total Assets - $558,413,546

SAFETY DEPOSIT BOXES

For the safe-keeping of Victory Bonds, securities and other valuable papers SAFETY DEPOSIT BOXES are conveniently located at the YONGE AND QUEEN STREETS BRANCH, and also at the WEST TORONTO BRANCH.

Branches and Agencies { Throughout Canada and Newfoundland Also at London, England New York, Chicago and Spokane in the United States and Mexico City

A GENERAL BANKING BUSINESS TRANSACTED

The Merchants Bank of Canada

Head Office, MONTREAL Established 1864

Paid-up Capital	$ 7,000,000
Reserve Funds	7,421,292
Total Deposits (Nov., 1918)	141,000,000
Total Assets (Nov., 1918)	173,000,000

President: Sir H. Montagu Allan, C.V.O.
Vice-President: K. W. Blackwell
Managing-Director: E. F. Hebden
General Manager: D. C. Macarow
Supt. of Branches and Chief Inspector: T. E. Merrett

AN ALLIANCE FOR LIFE

Many of the large Corporations and Business Houses who bank exclusively with this institution have done so since their beginning. Their banking connection is for life—yet the only bonds that bind them to this bank are the ties of service, progressiveness, promptness and sound advice.

276 Branches in Canada Extending from the Atlantic to the Pacific.

NEW YORK AGENCY, 63-65 WALL ST.

UNION BANK OF CANADA

Established 1865 Head Office, WINNIPEG

Paid-up Capital	$5,000,000
Reserve Fund	$3,400,000
Total Assets over	$153,000,000

IN EXTENDING YOUR EXPORT TRADE

You will find the facilities offered by the Union Bank of Canada a decided advantage in handling Drafts, Collections and Foreign Exchange.

The Commercial Information Bureau established in connection with the Foreign Exchange Departments of our London (Eng.), New York and Montreal Offices is at your service.

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6 Princes St., E.C. Haymarket, S.W.
New York Agency,
49 Wall St., New York City—Geo. Wilson, Agent

Banking Service

The attention of manufacturers is drawn to the excellent facilities this Bank offers in all branches of a complete banking service.

A good banking connection is an essential to the success of the manufacturer or merchant.

THE CANADIAN BANK OF COMMERCE

HEAD OFFICE - TORONTO

Capital, $15,000,000. Reserve Fund, $15,000,000
Total Assets over $440,000,000

IMPERIAL BANK
OF CANADA

CAPITAL PAID UP $7,000,000 **RESERVE FUND $7,000,000**

132 Branches in Canada

EXPORT TRADE

All indications point to the splendid opportunities now opening up to the Canadian manufacturer to extend the sale of his products in foreign markets.

This Bank offers particularly good facilities in the handling of the banking requirements of exporters. Its strong foreign connections guarantee the most efficient service.

Manufacturers contemplating extended trade connections will find this Bank of assistance to them.

AGENTS IN GREAT BRITAIN

ENGLAND
Lloyd's Bank Limited, London and Branches.

SCOTLAND—
The Commercial Bank of Scotland, Edinburgh and Branches.

IRELAND—
The Bank of Ireland, Dublin and Branches.

AGENTS IN UNITED STATES

NEW YORK
The Bank of the Manhattan Company

CHICAGO
First National Bank

BUFFALO—
Bank of Buffalo

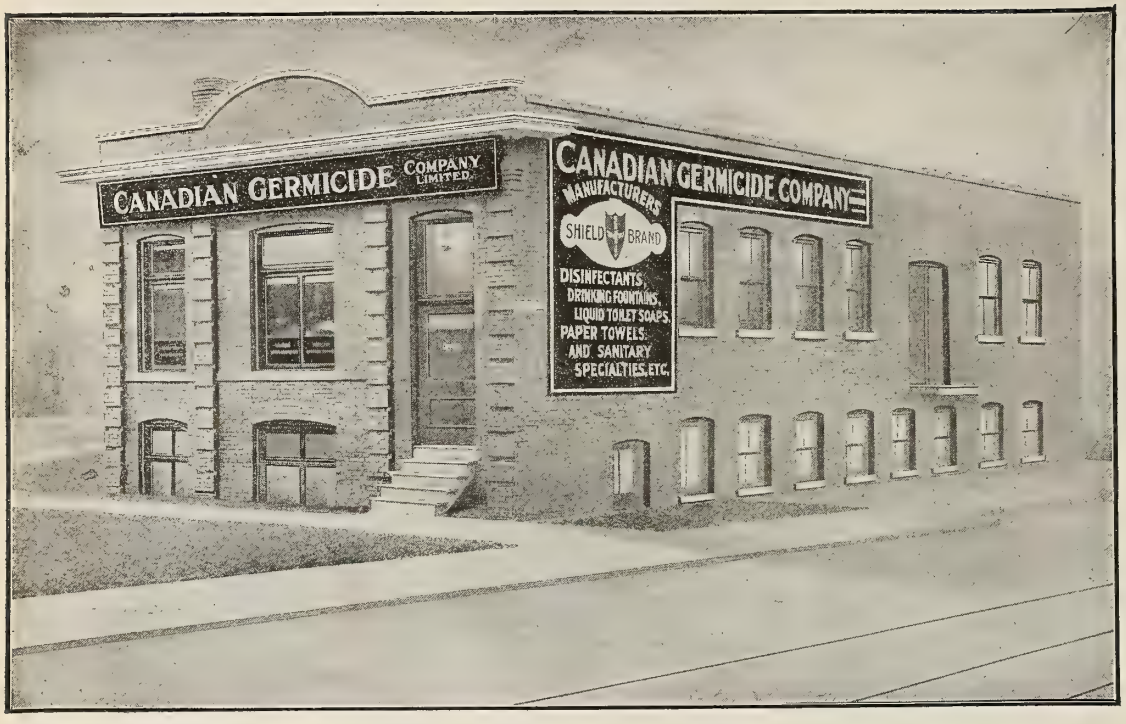
DETROIT—
Old Detroit National Bank

SAN FRANCISCO—
Wells Fargo Nevada National Bank, and in all other principal centres.

AGENTS IN FRANCE

Lloyd's Bank (France) and the National Provincial Bank (France) Limited.

Head Office - Toronto



Calkin's Automatic Disinfectors

will keep your Toilets free from odors.

Our LIQUID SOAP DISPENSERS are Sanitary and will save you money. Use LIQUID SOAP—it's pure.

SOL-O-KRE (Coal Tar) Disinfecting Fluid for scrubbing, cleaning and general disinfecting of Lavatories and Factories.

We make a specialty of Factory Disinfecting; put your problems up to our service men.

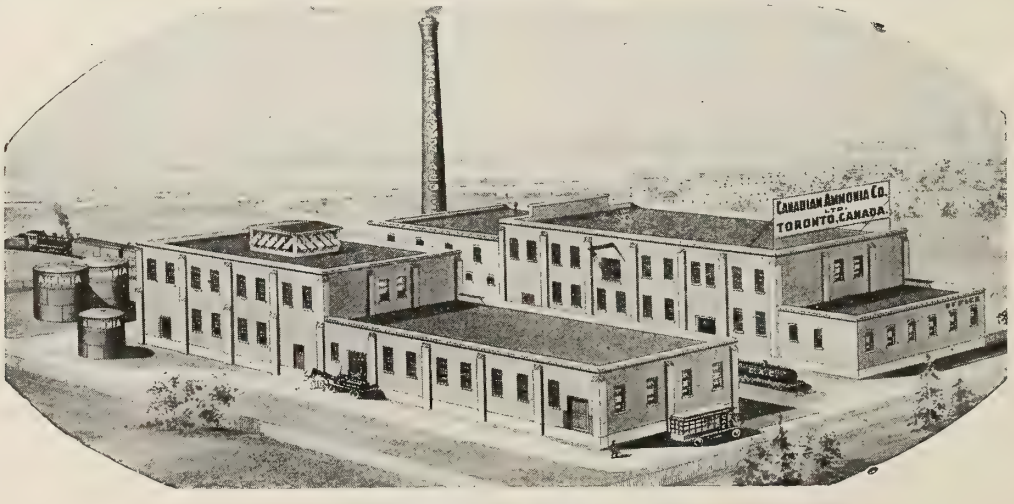
Representatives wanted in some cities

Office and Factory: 1 Howard Park Ave., Toronto, Canada

REMEMBER

The Excelsior Brand Ammonia

ANHYDROUS—AQUA—CARBONATE—BICARBONATE



MANUFACTURED BY

CANADIAN AMMONIA CO., LIMITED

TORONTO, ONTARIO, CANADA

Stocked in all the Principal Cities of Canada

Service *Service*

G.F.E. FITTINGS

are made from the best materials money can buy.

DAILY TESTS

Daily tests, both physical and analytical, are made by our expert chemists on mixture to see that it is always uniform.

Daily tests are made of strengths.

G.F.E. Fittings, after casting, must pass a most rigid inspection by our own experts. Thousands of fittings which we know would be merchantable are discarded as unworthy of our standard. Our standard therefore becomes your security.

Care and exactitude in manufacturing

G.F.E. FITTINGS

has resulted in a type and quality of fitting which are equal if not superior to any other make on the market.

And Our Service is as Good as Our Fittings

CANADIAN GENERAL FIRE EXTINGUISHER CO. LIMITED

W. L. HORN, Managing Director

TORONTO, ONT.—2440 Dundas St. West
MONTREAL, QUE.—370 Beaumont Ave.
WINNIPEG, MAN.—910 Somerset Bldg.
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Manufacturers of

Industrial Alcohol
Non-Potable Spirits
Cologne Spirits

J. P. WISER & SONS, Limited

Distillers

PRESCOTT - - - ONTARIO



Iron and Steel Bars

in

Rounds, Flats, Squares and Bands

The Manitoba Rolling Mill Co., Limited

The Manitoba Steel and Iron Company, Ltd.

Steel, Iron and Metal Merchants

GENERAL SALES AGENTS **WINNIPEG, MANITOBA**

MAPLE LEAF
M L
FINISHES THAT ENDURE
QUALITY

Printing Ink
Dry Colors

Electrical
Insulating
Liquids and
Compounds

MAPLE LEAF
Paints and Varnishes

Made in Canada







Manufacturers of

Maple Leaf Brand Paints and Varnishes

Maple Leaf Paint.	Elastilite Varnish.
Maple Leaf Flat Wall Colors.	Granitine Floor Finish.
Maple Leaf Colors in Oil.	Orolite Oil Finish.
Maple Leaf Creosote Shingle Stains.	"Floglaze," the finish that endures.

The Imperial Saving System and Maple Leaf Quick Drying Coach and Automobile Colors

Primers.	Colors in Oil.	Gear Varnishes.
Fillers.	Colors in Japan.	Rubbing Varnishes.
Coach Enamels.	Body Varnishes.	Finishing Varnishes.







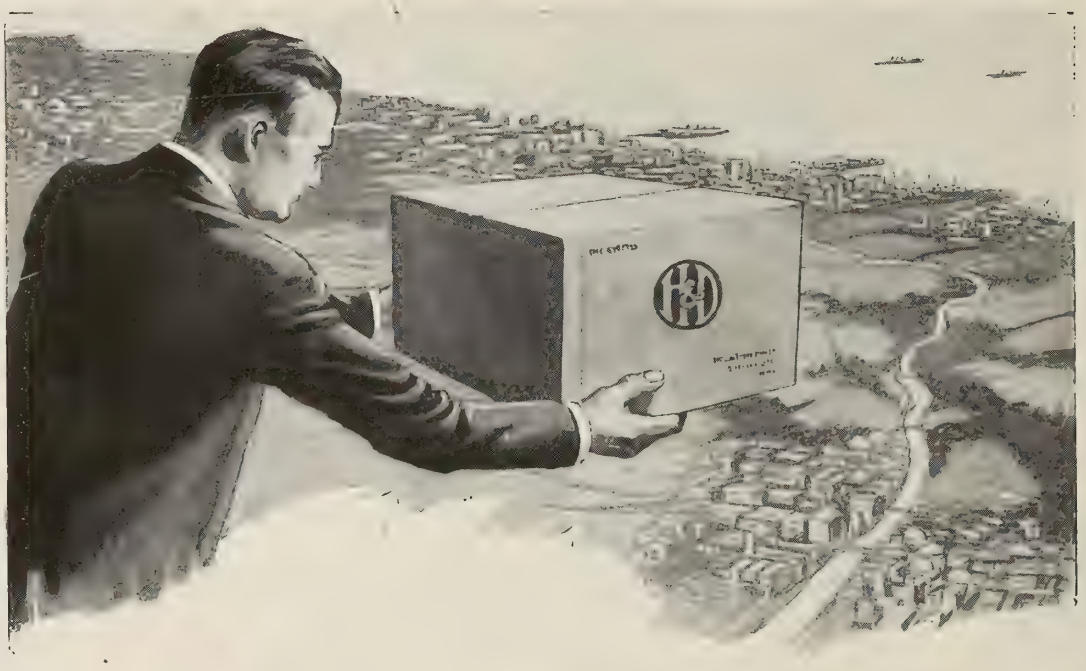
We also Manufacture

Japans.	Paint Dry Colors.	Stains.
Driers.	Printing Ink Dry Colors.	Wagon and Implement Colors.
Enamels.	Insulating Varnishes.	Wagon and Implement Varnishes.
Lacquers.	Electrical Compounds.	

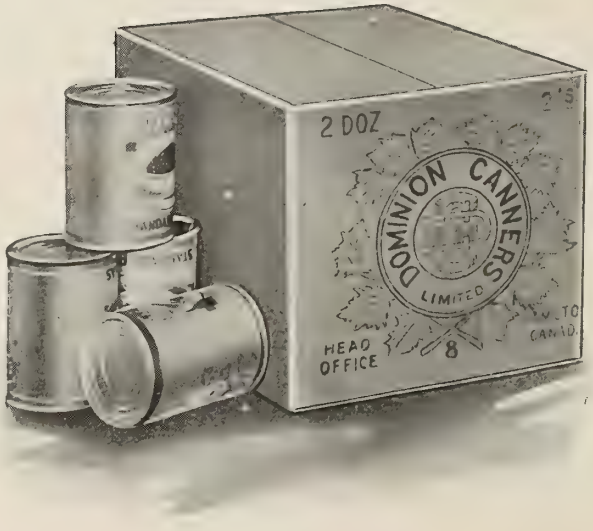
Write us for color cards, descriptive literature and prices.

THE IMPERIAL VARNISH & COLOR CO. LIMITED
WINNIPEG TORONTO VANCOUVER
CANADA

H. & D. Corrugated and Solid Fibre Board



Hinde & Dauch corrugated and fibre board boxes can be used for shipping practically every commodity. The United States Food Administration has endorsed this style of packing for all lines of food products.



CONTAINERS will save on your transportation charges, save your floor space, cut down packing expenses, and give you positive protection against loss from damage and pilfering. Write for prices and samples.

The Hinde & Dauch Paper Co. of Canada, Limited

TORONTO - CANADA



SODA ASH

MADE IN CANADA

BRUNNER, MOND CANADA, LIMITED

WORKS:
AMHERSTBURG,
ONTARIO

SALES AGENTS:
WINN & HOLLAND, LIMITED
137 McGILL STREET
MONTREAL



Dominion Abrasive Wheel Co. Ltd.





A grinding wheel for every purpose.

EXCELITE for general grinding, tools and tool room work.

CARBOLOX for brass, bronze, chilled and cast iron.

Large stock and prompt delivery. Send for new catalogue.

DOMINION ABRASIVE WHEEL CO., LTD.

Mimico, Ont., Canada

More Chocolate Money For Merchants

There is one brand of chocolate that now so far supplants all others in favor that merchants are not able to keep it long enough to build up a reserve stock. It disappears from their stores as soon as displayed and it sells at an attractive margin for the merchant.

That Brand is Moirs' Chocolates. Working full blast with big plants, we were not able to fill all orders in 1918. We've extended and speeded up our organization for 1919, so that the retailer who joins hands with us is assured of more sales and more profit for the coming year.

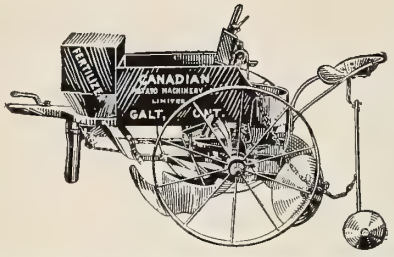
Write asking to be shown samples and prices.

Moirs Limited

Halifax, N.S.

O.K. Canadian Potato Machinery

Canada's Best have these reliable qualities, Simplicity and Durability, in their construction



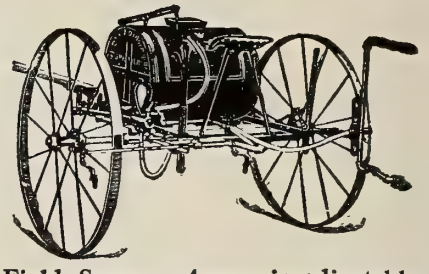
Automatic Potato Planter No. 22, with or without fertilizer attachment, will plant from 3 to 4 acres per day.



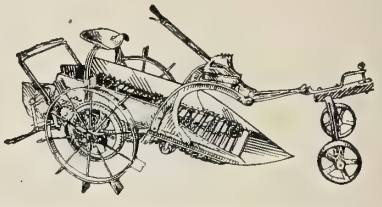
Seed Potato Cutter, will cut from 5 to 6 bushels per hour.



O.K. Canadian 2-Row Sprayer, just the thing for the small grower, suitable for all kinds of field spraying and small orchards, coops and stables, handles all kinds of liquids, also whitewash.

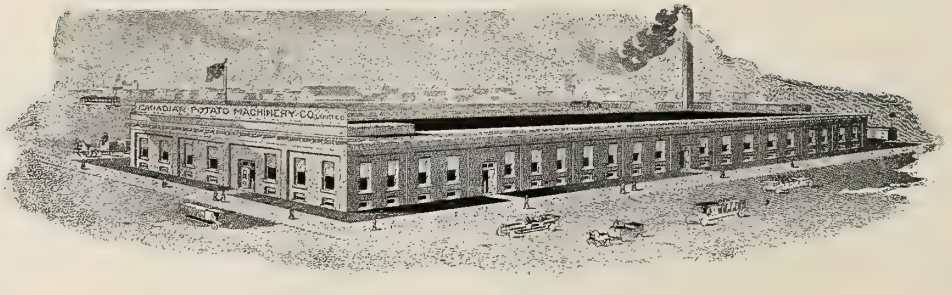


Field Sprayer, 4-row, is adjustable for high and low vines and wide and narrow rows. Drawn by one horse, will spray an acre in 20 minutes, suitable for all kinds of row crops.



Two-Horse Elevator Potato Digger. will dig from 3 to 4 acres per day,

The O.K. Canadian line consists of Seed Cutters, Planters, Sprayers, Diggers, Steel Stalls and Stanchions for cattle and water bowls.



Canadian Potato Machinery Co., Limited

GALT, ONTARIO

Largest Manufacturers of Potato Machinery in the British Empire

Do you get our Periodical Stock Lists ?



If not, drop us a line and we will put your name on our regular mailing list.

You will find the Bathurst Stock List both convenient and profitable if you are ever in the market for either rough or dressed lumber in carload lots.

We Specialize in Band-Sawn

SPRUCE AND WHITE PINE

We operate a complete planing and re-saw mill. Our logs come from our own timber limits covering 1,500 square miles.

PULP!

We manufacture both Kraft and Unbleached Sulphite Pulp. Of the Kraft we produce 50 tons, and of the Sulphite 50 tons daily.

Your inquiry is solicited. Our office organization assures prompt attention.

BATHURST

BATHURST LUMBER CO., LIMITED
BATHURST, N.B.

Poster Advertising in Canada

The picture poster speaks a universal language. It is equally interesting, attractive and as readily understood by the juvenile, illiterate or foreign classes as it is by the educated and cultured people.

Tremendous Circulation
Impressiveness of size
Persistent repetition
Produces quick action

We'll arrange posters for general display or concentrate them in any district where your sales may be weak, that is close to the stores of the merchants who carry your goods.

THE CANADIAN POSTER CO.

Lewis Building, MONTREAL

(Official Solicitors of the Poster Advertising Association of Canada)

handle every detail in Poster Advertising

Poster Advertising in Canada

In point of general efficiency, Poster Advertising throughout Canada is the most perfect in the World.

When you require a quick, forceful introduction, to keep an idea, trade-mark, feature figure, or the colored-to-life, true appearance of your products persistently prominent before the trade and public, POSTER ADVERTISEMENTS WILL BRING YOU SURE, ALMOST IMMEDIATE RETURNS.

THE CANADIAN POSTER CO.

Lewis Building, MONTREAL

(Official Solicitors of the Poster Advertising Association of Canada)

handle every detail in Poster Advertising

We will gladly send you full information, with details of cost and a plan of campaign for any town, district, or for a general display to cover either Canada or the United States.

POSTER ADVERTISING is our exclusive business. Over 75% of Nation-Wide contracts are entrusted to our care. We have produced the most successful poster designs ever seen in Canada and are glad to place the advantages of our organization and experience at the disposal of any advertiser with a sound proposition.

WHY POSTERS SUCCEED. By reason of their tremendous size, and facility for strong color attraction, they compel attention. By facility for employment of perfect illustration, they enable you to concentrate into pleasing picture, a tempting presentation of your products and to show facsimile packages in the most enticing environment.

Posters succeed because they permit the most natural desire-producing presentation of the article advertised, and because they reach all the people

BARRIE TANNING COMPANY
LIMITED

MANUFACTURERS OF

STAPLE AND FANCY **LEATHERS**

RUSSET SIDES AND SPECIALTIES

SHOE
BAG
CASE
TRUNK
STRAP

LEATHERS

HARNESS
BRIDLE
COLLAR
SPLITS
BOOKBINDERS

HIDES ALL SPECIALLY SELECTED

UTMOST ECONOMY IN CUTTING

FACTORY & HEAD OFFICE **BARRIE, ONT.**

WAREHOUSE & SALES ROOMS, 51 FRONT ST. EAST, TORONTO.

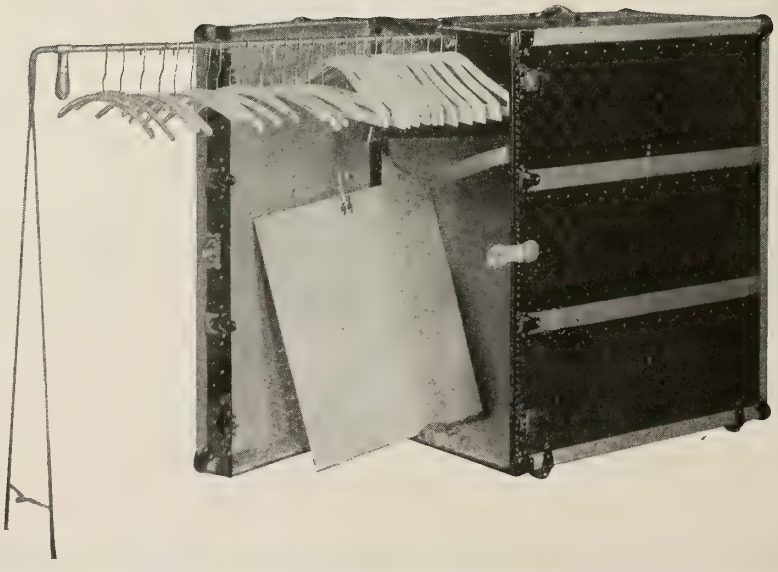
SHOW YOUR SAMPLES UNWRINKLED

WARDROBE TRUNKS

for Suits, Coats, Dresses and Waists

WE MAKE
SAMPLE TRUNKS
AND CASES
FOR EVERY
BUSINESS

Let us know your needs and get our prices.



The M. Langmuir Mfg. Co. of Toronto
Limited



MILITARY REQUISITIONS subjected our Equipment, Capacity and Organization to an extremely severe test, but we were not found wanting.

In like manner we are preparing to meet, in every respect, the large and varied demands, from the domestic and foreign trade, which it is prefigured will be made upon us during the

PERIOD OF RECONSTRUCTION

THE BREITHAUPT LEATHER CO., LIMITED

Tanners of Hemlock, Union and Oak Sole Leather

Manufacturers of Tap Soles and Jumbo Blocks for the Repair Trade.

Canadian Branches at Toronto, Montreal, Quebec, Kitchener, Penetang, Hastings, and Woodstock, Ont.
U.S.A. Branches at Boston, Mass., and Chicago, Ill.
Represented in the West Indies by the Kitchener Export Association
and in Australia by Export Association of Canada

HEAD OFFICE - - KITCHENER, ONTARIO

ESTABLISHED 1875

Freyseng Cork Co., Limited

TORONTO - MONTREAL

MANUFACTURERS AND IMPORTERS OF

CORKS

Hand Cut—Machine Cut

BOTTLERS' SUPPLIES

Prescription Corks a Specialty

Corking Machines
Capsule Machines
Bottle Capsules
Tinfoil
U.S. Bungs and Plugs
Straw Covers
Bottle Baskets, etc.
Crown Corks
Keg Corks

Barrel Corks
Karl Keifer Filters and Machinery
English Filter Masse
Sealing Wax, etc.
Lead Seals
Label Gums and Pastes
Ermold Labelling Machines

Sole Agents in Canada for
Excelsior Bottle Wrappers Adriance Crowners
Ermold Labelling Machines
Universal Label Pasting Machines
Write for Quotations

AGENCIES:
HALIFAX — WINNIPEG — CALGARY
EDMONTON — VANCOUVER

ESTABLISHED 1863

UP-TO-DATE SIDE UPPER LEATHER

The

King Brothers Company

Limited

WHITBY, ONTARIO

Manufacturers of

CHROME, COMBINATION and BARK TANNED LEATHERS

OOZE, FLEXIBLE AND WAX SPLITS FOR HOME AND EXPORT TRADE

LEATHER BELTING

Made in Canada

J. L. Goodhue & Co., Limited

DANVILLE, QUEBEC

Manufacturers of

SUPERIOR QUALITY LEATHER BELTING AND LACE LEATHER

QUALITY

Not Price Our Aim

Canadian Manufacturers SHOULD USE Canadian Belting

Winnipeg Agents:
BISSETT & WEBB, Limited
126 Lombard St.
Winnipeg, Man.

Vancouver Agents:
FLECK BROS., Limited
54 Cordova Street East
Vancouver, B.C.

Montreal Agents
STANDARD MACHINERY & SUPPLIES, Ltd.
260 ST. JAMES ST., MONTREAL

Made in Canada



From British Stock

"GENUINE OAK"

LEATHER BELTING

"D.K."

BALATA BELTING

Guaranteed to Give Satisfaction

D. K. McLAREN LIMITED

TORONTO MONTREAL ST. JOHN, N.B.
849 Beatty Street, VANCOUVER

HIGH-GRADE RUBBER GOODS

MADE IN CANADA

BELTING
Transmission
Conveyor
Elevator
PACKINGS
Sheet, Piston, Etc.
VALVES & VALVE DISCS
TUBING OF ALL KINDS
GASKETS and WASHERS
MATS and MATTING
FLOOR TILING
STAIR TREADS
FORCE CUPS
WRINGER ROLLS



RUBBER HOSE
for
WATER
SUCTION
STEAM
AIR
GARDEN
FIRE PROTECTION
PNEUM. TOOLS
VACUUM CLEANERS
GASKET TUBING
GRAIN DRILL TUBES
DREDGING SLEEVES
MOULDED GOODS, Etc.

"Maltese Cross" Rubber Footwear

"Maltese Cross" Rubber Heels and Soles

"Tenax" Fibre Soles

"Maltese Cross" Automobile Tires and Inner Tubes
Motorcycle Tires and Carriage Tires

Solid Tires, Tires for Invalid Chairs and Baby Carriages
Auto Tire Accessories

Special Attention Given to Export Orders

Manufactured by

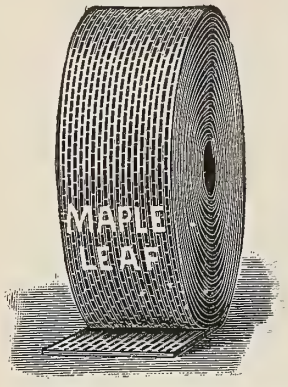
GUTTA PERCHA & RUBBER, LIMITED

Head Offices: 47 YONGE STREET, TORONTO, CANADA

Branches at **Halifax, Montreal, Ottawa, Fort William, Winnipeg, Regina, Saskatoon, Edmonton, Calgary, Lethbridge, Vancouver, Victoria.**

Selling Agencies in Great Britain, Australia, New Zealand, British West Indies, Newfoundland and South Africa

Dominion Belting Co., Limited
Hamilton, Canada



SOLE MANUFACTURERS OF THE CELEBRATED

"MAPLE LEAF" BRAND

STITCHED COTTON DUCK BELTING—

STRONG DURABLE ECONOMICAL
TRUE RUNNING

Being thoroughly waterproof it is equally good for running in wet or dry places. As a main drive belt, "MAPLE LEAF" cannot be excelled and for conveyors it is in great demand. A trial belt will convince you

MAPLE LEAF BELT DRESSING
The Best for all kinds of Belts

WRITE FOR SAMPLE AND PRICES

Quebec Branch: 51 Duluth Building, Montreal



Cut of 60-inch "Extra" Double Belt
Made by The J. C. McLaren Belting Co., Limited.

WE ARE HEADQUARTERS FOR ALL KINDS OF

BELTING
LACE LEATHER
CARD CLOTHING
REEDS AND
GENERAL
MILL SUPPLIES

ABSOLUTE SATISFACTION GUARANTEED

The J. C. McLaren Belting Co., Limited

ESTABLISHED 1856

Head Office and Factory
MONTREAL, Que.

Branches:
50 COLBORNE ST., TORONTO
80 LOMBARD ST., WINNIPEG

There is a

SADLER & HAWORTH BELTING

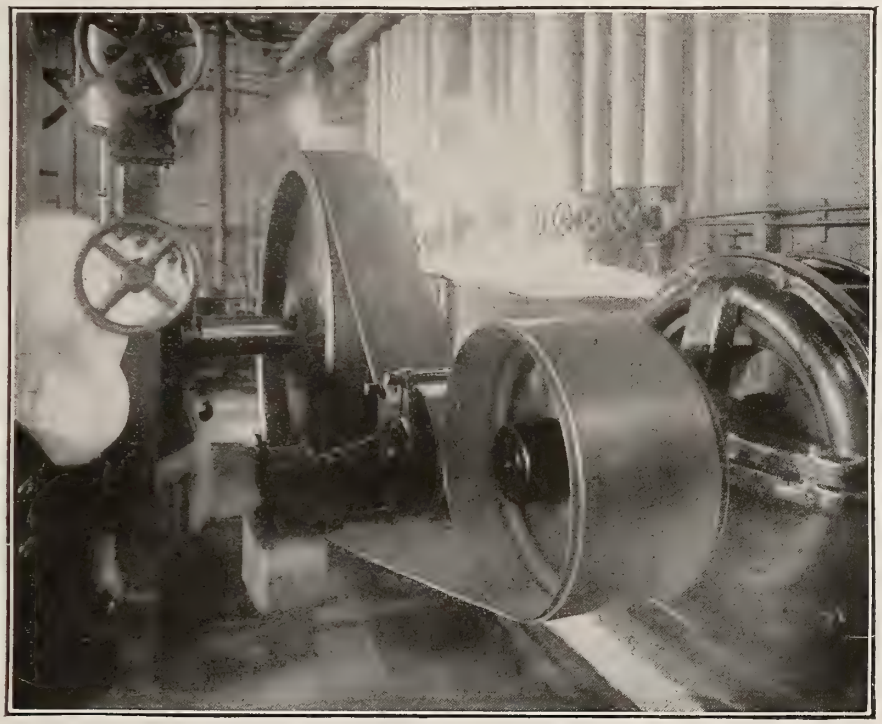
for use under every condition

SADLER & HAWORTH Belting is high quality Belting.

Quality Belting ensures you the least slippage, least breakage, takes up all the power and delivers all the power.

When Sadler & Haworth Belting feeds the power to your plant you are keeping transmission cost at a minimum.

Tell us your requirements. We'll be glad to furnish information and price of the belt that will best meet your needs.



A Sadler & Haworth Belt in the Matthews-Blackwell Plant at Montreal.

Illustration shows a S.&H. Belt connecting a 50-ton Ice Machine to 200 H.P. Canadian General Electric Motor. This unit has been in continuous operation since the middle of May. Belt is 17 inches wide, double "Climax" waterproof. Belt speed 5,652 ft. per minute.

SADLER & HAWORTH

Tanners and Manufacturers of Oak Leather Belting

511 William Street, Montreal P.Q.

Toronto, Ontario—38 Wellington St. E.; Winnipeg, Manitoba—Galt Building; Vancouver, B.C.—560 Beatty Street; St. John. N.B.—149 Prince William St.



Dominion Rubber System Products are Efficient, Dependable and Economical

Whether your requirements are for manufacturing, commercial, professional, household or personal use, Dominion Rubber System Products assure that efficiency, dependability and economy, which mean long service and satisfacton.

This is the basis upon which the Dominion Rubber System has built the largest rubber organization in Canada. It is the quality basis that assures better rubber goods.

"Dominion Rubber System" trademarks safeguard you against inferior goods—each product is guaranteed.

Dominion Rubber System manufactures—

Dominion Tires—Nobby Tread, Chain, Dominion Cord, Plain, Grooved, and Dominion—the ***Good*** tires for every purpose.

Fleet Foot Shoes—the summer footwear for men, women and children.

Rubber Footwear—the well known—Dominion, Jacques Cartier, Maple Leaf, Granby, Merchants and Daisy Brands.

Rubber Boots—for firemen, fishermen, miners and sportsmen.

Dominion Raynsters—the double-purpose "Made-in-Canada" raincoats for men, women and children.

Druggists' Sundries—hot water bottles, ice caps, sheeting, tubing and other druggists' sundries for home, hospital and medical use.

Rubber Hose—including fire, garden, factory, steam and air hose.

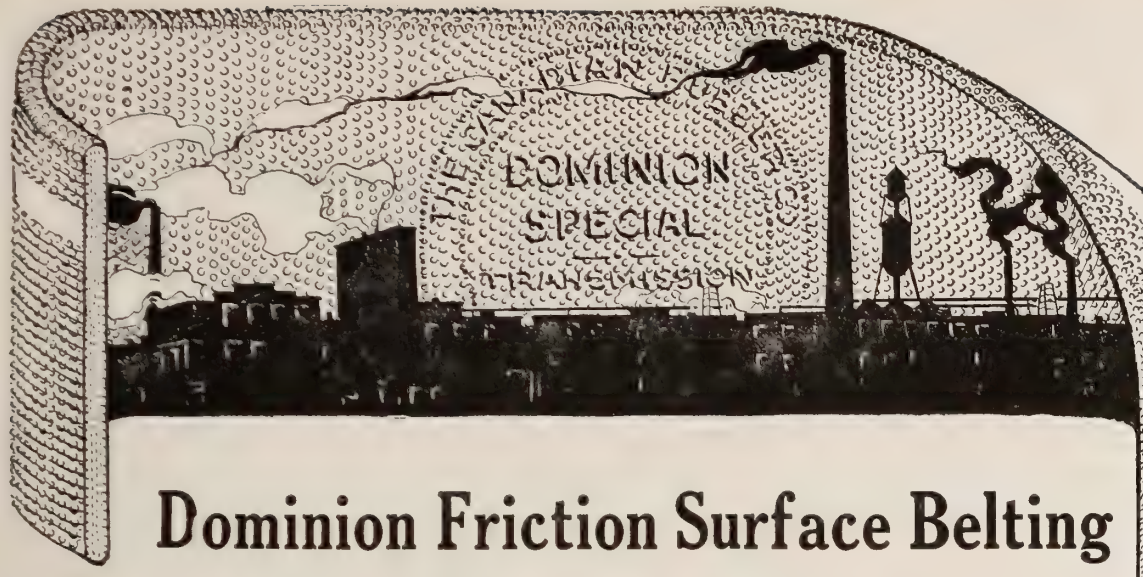
Rubber Coats—in all varieties and for all purposes.

"Rinex"—the soles that outwear two ordinary soles and give comfort and resiliency to your shoes.

Insist on these and other Dominion Rubber System Products and profit by our superior service.

Complete information and prices on request to our nearest branch.

CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES



Dominion Friction Surface Belting

Conserves Power and Labor, Increases Production and Cuts Manufacturing Costs

The lowest possible manufacturing cost is obtained only through highly efficient equipment that will conserve power and labor and "speed up" production.

Dominion Friction Surface Belting is the most economical and efficient transmission equipment obtainable.

Dominion Friction Surface Belting is more than waterproofed fabric—it conserves power by taking a "bull dog" grip on the pulleys that practically eliminates slipping and transmits the maximum force that can be transmitted by a belt.

The economy, uniformity and dependability built into each foot of Dominion Friction Surface Belting insure long and continuous service which saves much time, energy, trouble and worry for employees, and prevents idle machines by removing the cause of transmission troubles.

Dominion Friction Surface Belting "speeds up" production by giving long and continuous service—by conserving power and labor and insuring satisfied operators.

In the largest
Paper Mills
Flour Mills
Steel Plants
Sugar Refineries
Textile Mills
Grain Elevators
Railway Shops
Machine Shops
Saw Mills
Power Houses
Cement Mills
Automobile Plants
Quarries
Mines
and wherever Transmission is required.

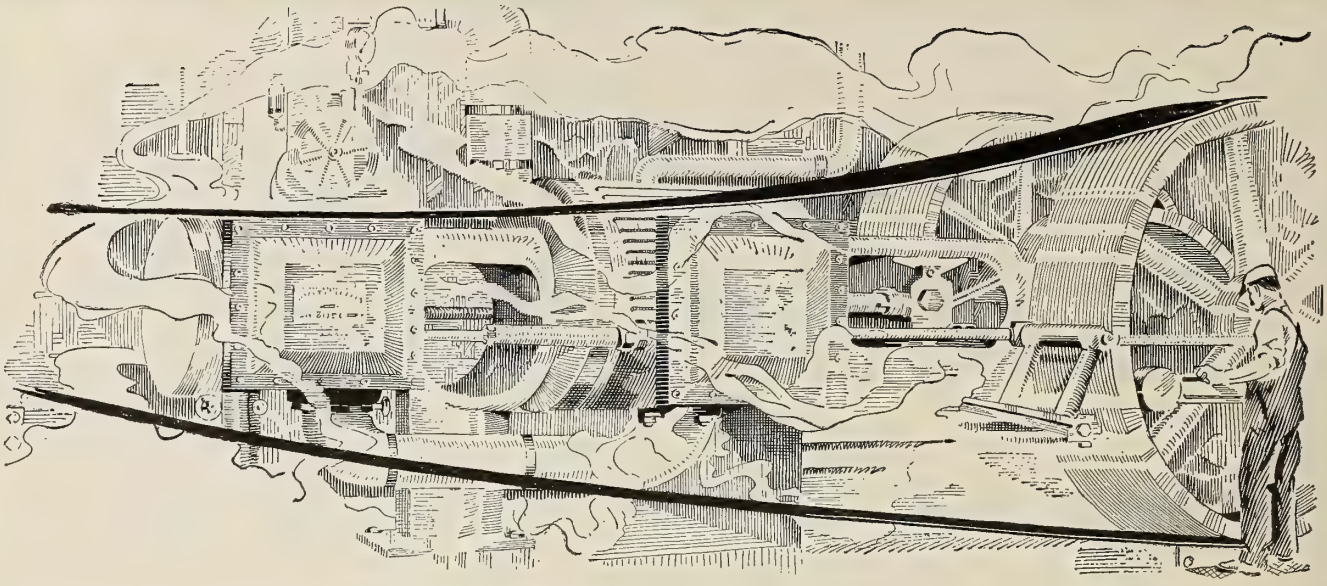
CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES

Our belting engineers can help to cut your manufacturing costs just as they have helped other manufacturers.

One of our service branches is within phone call of your plant —your request for advice places you under no obligation.

Service Branches

Halifax,	Toronto,	Fort William,	Edmonton,
St. John,	Hamilton,	Winnipeg,	Calgary,
Quebec,	London,	Brandon,	Lethbridge,
Montreal,	Kitchener,	Regina,	Vancouver,
Ottawa,	North Bay,	Saskatoon	Victoria



Good Belting Service in Hard Places

Improved service and lower belting costs have come wherever Goodyear Extra Power Belting has been installed in hard places—on drives exposed to the heat of furnaces, the live steam of engine rooms, the variable atmosphere around a lumber mill, or the out-door conditions of a thresher outfit.

In the Wallaceburg plant of the Dominion Sugar Company, for example, there is a Goodyear Extra Power Belt that has won for itself an unusual record—and firm friends.

For it has solved a difficult belting problem. It has overcome conditions under which other belts and other types of belting have failed completely. Even under normal conditions the service this belt has yielded would be welcomed in many plants to-day.

Read the brief statement given us by Mr. F. W. Gonyan, their Chief Engineer:

"This belt is 46 ft. 4 in. of 7 in. x 8 ply Extra Power and runs on Screw Conveyor Drive. Load variable. *Belt always exposed to live steam. A special* . . . . wouldn't start the drive; another type of belting lasted one week; . . . unsatisfactory——

——Extra Power has run *one year* and has *never been touched.*"

Similar testimonials have come to us from every province in Canada, proving that such trouble-free service is not exceptional — that on exposed drives such as this, Goodyear Extra Power Belting is winning a Dominion-wide reputation.

For example; duplicating the above statement of Engineer Gonyan, we have received the following from E. C. Farber, of the Beaver River Lumber Co., County Line, B.C.

"The conveyor belt runs direct from a small engine to the conveyor drive and is a six inch, six ply Extra Power Belt. *It is subject to steam and heat in the engine room and to cold and dampness on the outside.* Although it has been in use for a period of *five months* now under these conditions, there is no sign of deterioration and there is *no slippage.*"

Backing up these two testimonials comes this verdict from J. Mahhon & Sons, Calgary, who use Goodyear Extra Power on their threshing outfit:—"Your Extra Power Belt is as good now as when the season commenced, and we had the hardest threshing we have had as long as we have been threshing."

Belting that gives good service and lower costs under abnormal atmospheric conditions is surely a better belt for all ordinary drives. The Goodyear Belting man has a big story to tell you. He's a man trained to discuss belting problems. Perhaps he may help you. His service or ours involves no obligation. Phone or write the nearest branch.

The Goodyear Tire & Rubber Co. of Canada, Limited

Branches — Halifax, St. John, Montreal, Ottawa, Toronto, Hamilton, London, Winnipeg, Regina, Calgary, Edmonton, Vancouver.

Service Stocks in Smaller Cities

GOODYEAR

MADE IN CANADA

EXTRA POWER BELTING

The Export Association of Canada
LIMITED

CODES
Bentley's Phrase Code
Western Union (Universal Edition)
World's Universal A.B.C. 5th Edition

CABLE ADDRESS
Youngrady, Montreal

Montreal -	Head Office
London, Liverpool	England
Melbourne, Sydney	Australia
Auckland, Wellington, Dunedin	New Zealand
Johannesburg, Capetown	South Africa
Kingston, Jamaica	British West Indies

Manufacturers and Producers desirous of finding markets abroad for their product should communicate with the Export Association of Canada Limited, who have selling organizations in the above mentioned countries, and have correspondents in ***Other Parts of the World.***

The Financing of Shipments, and all matters appertaining to Shipping, Insurance and Forwarding come within the scope of our services.

If you wish to develop an export business, we are splendidly equipped to advise you, and to offer your goods in markets where we are well established.

Write for further information to

Export Association of Canada Limited
Eastern Townships Bank Bldg., Montreal

S·D&M LIMITED

Advertising is greater than tariffs

Yonge Street, Toronto, may be considered a typical market place. Here goods of every description are displayed for sale. The merchandise that passes through Yonge Street stores must total millions of dollars a year. Yonge Street is characteristic of hundreds of thoroughfares in other Canadian cities and towns.

There is a sermon in the stores of Yonge Street for the Canadian manufacturer—for it is doubtful if on any other street a greater percentage of Advertised Goods are sold. You may have noticed, perhaps, what a small percentage of these advertised goods represent Canadian labor, capital or INITIATIVE.

Things to wear, foodstuffs, automobiles, soaps, cigars, medicines, toilet articles—bearers of famous names and brands—goods that retailers MUST handle because of the demand for them—few are of native design, manufacture or origin.

The newspapers sold on Yonge Street—the hangers in shop windows — the painted signs on walls, extol the merits of goods that at the best are only Canadian by adoption, or not Canadian at all.

Tariff protection will not sell goods.

Advertising will.

Advertising is a greater selling force than tariff protection.

There is only one way to make the name of your goods famous—through advertising.

Have you ever considered this point?

Advertising increases the quality of the goods advertised—not in an intangible sense, but in actuality. When you start in to advertise your goods you will commence to make a better product. You will constantly seek ways and means to improve the quality and service of the goods you sell IF FOR NO OTHER REASON THAN TO HAVE A NEW ADVERTISABLE FEATURE.

That, perhaps, is the greatest argument of all in favor of Advertising. Its recognition or rejection may determine the future of Canada as a Manufacturing Nation.

SMITH, DENNE & MOORE LIMITED

General Advertising Agents

LUMSDEN BUILDING, TORONTO

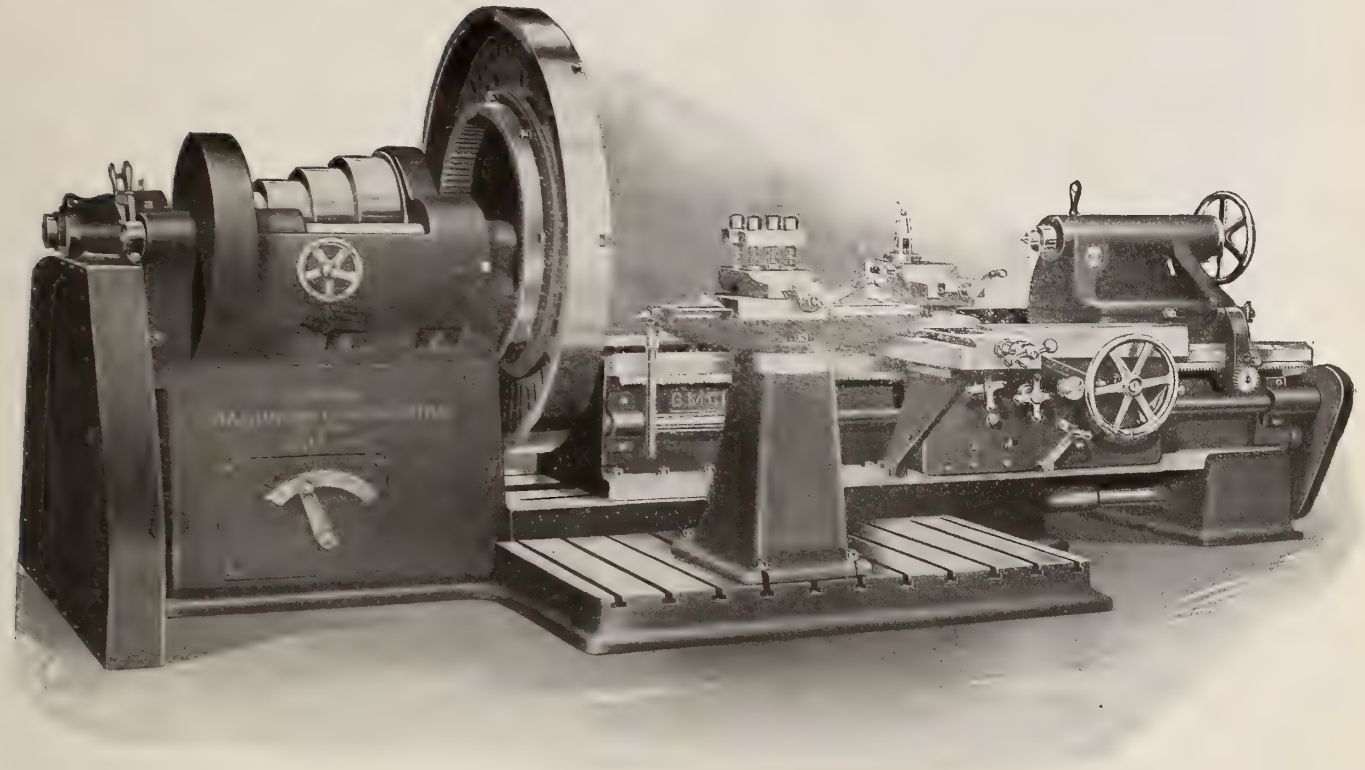
McGill Building, Montreal

New York
1463 Broadway

London, England
25 Victoria St., S.W.

Paris, France
31 bis Faubourg Montmartre

Trade Mark C.M.C. Registered



74" & 86" BREAK LATHE

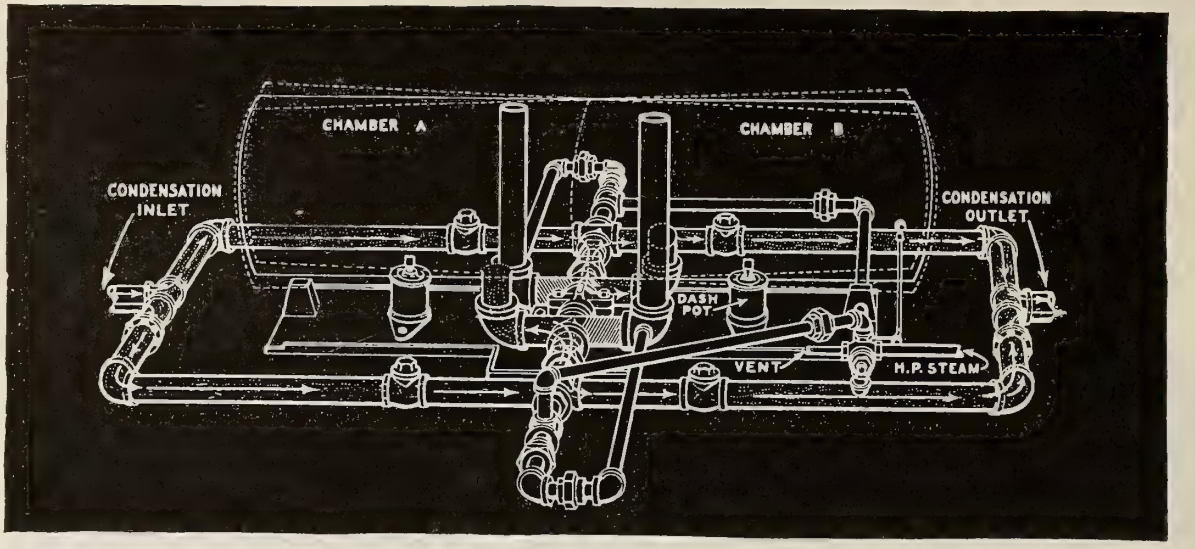
Manufacturers who wish to receive their share of business during the period of reconstruction are urged to give their machinery requirements the earliest consideration.

We are prepared to furnish detailed information, to quote prices, and to effect good deliveries on iron and woodworking machine tool including :–

Engine Lathes	Surfacers
Gap Lathes	Matchers
Shapers	Rip Saws
Planers	Band Saws
Slotters	Moulders
Punches and Shears, etc.	Jointers, etc.

CANADA MACHINERY CORPORATION, LIMITED, GALT, ONTARIO

Toronto Office and Warerooms: Brock Avenue Subway



FARNSWORTH CONDENSATION PUMPS

The coal shortage, in so far as it has called our attention to wasted heat, has been a blessing in disguise.

Thousands of tons of coal may be saved by Farnsworth Condensation Pumps. They offer a double saving. First, by using a closed system, keeping the condensate under pressure, they return the maximum number of heat units to the boiler. Secondly, they can be operated on a small fraction of the steam required to operate a reciprocating pump.

Farnsworth Condensation Pumps are replacing other types of pumps and steam traps in a great many places. Let us tell you what they are doing in large Canadian plants.



MADE IN CANADA BY

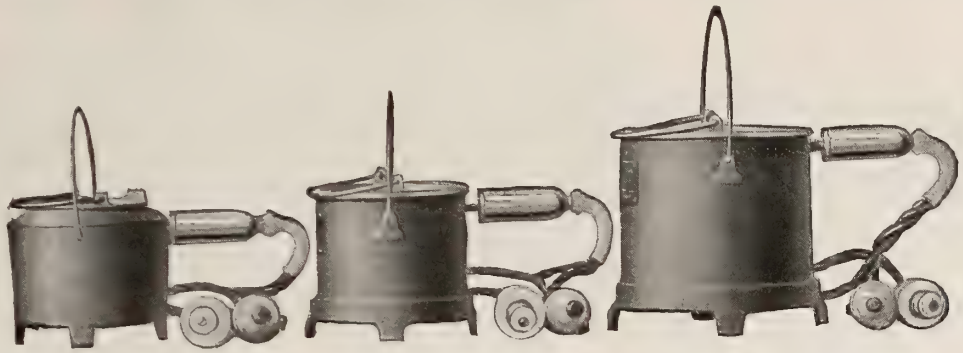
The Canadian Fairbanks-Morse Co., Limited

"Canada's Departmental House for Mechanical Goods"

Halifax, St. John, Quebec, Montreal, Ottawa, Toronto, Hamilton, Windsor, Winnipeg
Saskatoon, Calgary, Vancouver, Victoria

Westinghouse

Industrial Heating Appliances



Westinghouse Portable Cast-Iron Type Glue Pot 1 Pint Capacity

Westinghouse Portable Copper-Type Glue Pot 1 Quart Capacity

Westinghouse Portable Copper-Type Glue Pot 2 Quart Capacity

Electrically Heated Glue Pots have advantages possessed by no other method of heating. There is no flame, no smoke, no soot. All the heat is inside where it is wanted, and the pot can be used among combustible materials with perfect safety.

There are no steam or gas pipes, only a flexible cord to bring the heat to the pot. A portable pot may be used, and can be placed wherever there is a lamp socket.



Westinghouse Solder Pot

Electrically Heated Solder Pots for individual use are the most satisfactory, economical and safest means of melting solder, lead, tin, babbitt, and similar metals, and keeping them in a liquid condition.

Not having to carry the melted metal in ladles to the work saves time and eliminates the danger of serious burns to employees.

These, and other Westinghouse Industrial and Domestic Electric Heating Appliances are fully described in Catalogue No. B-C.

Canadian Westinghouse Company, Limited, Hamilton, Ontario

TORONTO Traders Bank Bldg. | MONTREAL 52 Victoria Square | OTTAWA Ahearn & Soper, Ltd. | HALIFAX 105 Hollis St. | FORT WILLIAM Cuthbertson Block

WINNIPEG 158 Portage Ave. E. | EDMONTON 211 McLeod Bldg. | CALGARY Canada Life Bldg. | VANCOUVER Bank of Ottawa Bldg.

Made in Canada



One of the many Ford Service Stations in America that is covered with a Barrett Specification Roof.

On FORD Service Stations

Most of the large flat roofs in the United States as well as many others in Canada, carry the Barrett Specification type of roof. But for covering smaller buildings with a roof-area of 5,000 feet or more, Barrett Specification Roofs are equally satisfactory and economical.

These are the reasons for their wide popularity:

First—Their cost per year of service is lower than any other permanent roof-covering.

Second—They cost nothing to maintain.

Third—They carry a Surety Bond Guaranty for twenty years—something that no other manufacturer has ever offered.

Fourth—They take the base rate of fire-insurance.

Fifth—Experience proves that they will last much longer than twenty years because they contain *more waterproofing material* than any other roofing, and, further, because they are constructed under the supervision of our inspectors.

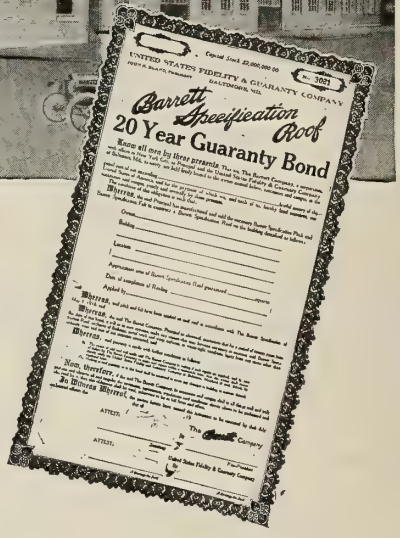
One familiar class of structures in the United States is that of the Ford Service Stations. There are hundreds of them, some large, but most of them of moderate size. Barrett Specification Roofs cover a large number of these.

Illustrating how the owners feel, we quote from a letter from the Ford Service Station at Providence, R. I., U. S. A.:

"We wish to say that your Barrett Specification Roofing that you have placed on our Service Station at Allens Avenue has given us entire satisfaction.

"In these days it is a novelty fo find a roofing material of superior stock and workmanship, and we are very glad to compliment you on this work."

Before you order a roof for any permanent building be sure to look into the merits and cost of Barrett Specification Roofs. If you do you will have no other kind.



20-Year Guaranty

We now guarantee Barrett Specification Roofs to last for twenty years without cost for maintenance. No charge for the guarantee, for it gives us a chance to protect the good repute of these roofs. The guarantee is a surety bond issued by one of the largest surety companies of America, the United States Fidelity and Guarantee Company of Baltimore. It is offered on all roofs of fifty squares and over in all cities of 25,000 population and more, *and in smaller places also where our Inspection Service is available.*

A copy of The Barrett 20-Year Specification, with roofing diagrams, sent free on request

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.

INDUSTRIAL CANADA

ISSUED BY

The CANADIAN MANUFACTURERS ASSOCIATION.

INCORPORATED.

Vol. XIX. TORONTO, JANUARY, 1919 No. 9

A Call to Action from the President

Broad and Vigorous Policies Needed to Ensure the Future Prosperity of Canada

By W. J. BULMAN

Bulman Bros., Limited, Winnipeg

President, Canadian Manufacturers Association

ALL is silent on the war front. The rumble of artillery is no longer the undertone of all the industrial activities of the world. The benediction of peace is about to be pronounced and we will once more revert to the more humane and natural channels of useful effort. We rejoice that the order "Cease Fire" has been given, because it means cease killing, mangling, poisoning, blinding and wrecking. New duties and new obligations now call loudly for attention.

Construct as Well as Reconstruct

The task of the period ahead of us is a no less strenuous one. But the prospects do not indicate an altogether unhealthy situation. Reconstruction is now the order of the day. One sees the word in every newspaper and magazine and hears it from almost every lip. In giving attention to this great problem we must not forget that in many respects it is a changed world we have to deal with. A world of new standards of life and labor, new social relations, new obligations and new national and international ideals is now to be dealt with. Certain conditions of the past must not be allowed to take root again. We must not fall into old pitfalls. We must construct as well as reconstruct.

One hears and sees a great deal said and written about making the world safe for democracy. We have also had tangible proof given us that democracy must be made safe for the world. Conditions at present are in a state of flux. Certain classes still arrogantly claim for themselves rights and possessions. Selfish ambition and greed are alive to their opportunities. It will require careful handling to turn the great undercurrents of unrest into worthy channels. If we in Canada are to achieve our greatest destiny, we must be done with class and clique party platforms. Each class must meet the other in an attitude of mutual tolerance and respect and devise a platform that will be for the general good. Co-operation is the greatest lesson we were taught by the war. It was of great benefit over there. Surely it can be made of equal benefit here. If we are to have a proper development along sound lines and in keeping with the principles for which we have fought there must be co-operation. All the agencies that are anxious to lend their services for the public good should work together. The big problems to be conquered will be satisfactorily settled only by fraternity—not by fighting.

Owing to the tremendous demands for war equipment, the taking of labor from peaceful industries and the depletion of manhood, wages have advanced to an extent before unknown. It is reasonable to expect a gradual, in some cases, a sharp drop in commodity prices and, as the cost of living declines, this would likely be followed by a drop in wages. At the same time, manufacturers should and will keep up wages just as long as they possibly can. This is no time for any group or class to breathe out threatenings. Fair play on the part of both labor and capital should adjust all such matters without industrial turmoil. Wages have most properly been increased during the period of rapid rise in the cost of the necessities of life, but if in a few months the price of meat, potatoes, flour, milk, clothing and other necessities begins to fall, wages should diminish accordingly. This would not in the least impair the privileges or the purchasing power of the working man. He would be just as well off as before. The process of readjustment calls for both tact and fairness on the part of both employers and laborers, and under these conditions a mutually satisfactory solution should be brought about.

The General Good Must Govern

If we are to build our future aright, what is for the general good must govern. There is need for thought and action along the broadest, national lines. We must fight against foibles and reactions masquerading as reconstruction. High ideals must be paramount to the mobilized appetites of any class. We have our national future to build. All of us must live in the building that is to be built. No doubt each group in the Dominion and each individual in each group would like to be the architect. That cannot be. Let us try to avoid the danger of losing all plan and direction in a discordant multitude of counsel. Let us have unity and leadership and subordination of selfish class and sectional interests to the interests of the nation.

In the consideration of the ideal, one's mind invariably reverts back to earth to consider what is practical. That

inborn common sense with which we are more or less endowed keeps us from engaging altogether in flights of mere fancy. This is the surest guide we have. It compels us to look at conditions as they really are, to weigh well and determine what we have to do to work out our national salvation and to avoid the mere visionary and selfish interests.

During the war we have built up a national debt greater than we had ever dreamed of. The greatest pre-war, national revenue we ever had will not pay half the interest charges on this enormous debt. During the war we were saved from business depression by an enormous increase in our export business. Canada must continue to export or she will be unable to meet her national obligations.

War orders are being gradually cut off. A Peace market must be found at once. If not, machinery will stand idle and rust. Labor will lack employment and want and invested capital will become an economic waste. Old customers must therefore be hunted up and sold their usual supply. New customers must be secured if the new industrial facilities brought into activity by the demands of the war are to have outlet for their products.

Canada has been lavishly endowed with natural resources of field, forest, mine and water, for which undoubtedly a ready market can be found if proper development is carried on. These natural treasures will undoubtedly attract a healthy tide of immigration, and the work of development will furnish labor for untold thousands. We will give away the most valuable part of our birthright if we are content to ship these raw products to foreign countries for manufacture. The value of the raw material has been said to represent on the average only 20 per cent. of the value of the finished article. Unless we turn the raw product into the finished article in Canada we will lose the other 80 per cent. of wealth that might be created here. The workmen of a foreign country will earn a livelihood that should properly belong to the workmen in Canada. We should rather adopt a policy that will not only furnish abundance of work for our own labor, but that will also encourage the foreign workman to come among us and be one of us, bring his family here and not only create the wealth here but spend it here also. Under those conditions we can look to having a prosperous Canada, vastly increased in population and well able to bear the burden of the war debt.

That, however, is looking more or less to the future. We have a present reason for not wanting to fritter away our birthright. Millions of dollars have been invested in munition plants which will become altogether useless if these organizations cannot be made to manufacture peace goods. Still more manufacturing organizations will have to be created in Canada if it is so arranged that the product of every Canadian acre, every forest and every mine has to be turned into the finished article in Canada. We would then have a steady demand for more and more labor and at remunerative wages.

An export trade would then be absolutely essential. It would seem the part of wisdom for us to begin now a vigorous seeking of export business. Our Government should lend its aid in a most forceful way to the accomplishment of this end.

We now have a goodly supply of goods for which there will be a strong, immediate demand for the reconstruction and feeding of war-torn Europe. It is not sufficient that we have the goods. It is only over there that they have their value. Transportation facilities adequate to the occasion are needed to carry them there. There is at present a world shortage of ships. The ships of other countries will be kept busy for some time carrying the products of these countries to which they belong. We must not be left to wait their convenience. If we are to succeed in our export trade we should have our own mercantile marine—ships built in Canada, owned in Canada and manned by Canadians. The present time is most opportune for us to not only equip ourselves to carry our own goods, but also to gain a share of the world's carrying trade. It would go far in insuring the future prosperity of Canada if the greatest encouragement were now given to our shipbuilding industry.

The greatest immigration advertisement Canada has ever had has been written in imperishable glory by our soldiers overseas. This will no doubt eventually result in a flow of immigrants to our shores, more marvellous than the world has yet seen. Additional advertising will be necessary to make known what goods we have to sell and ensure their continuous flow to other countries. On advertising will rest largely the obligation of creating a foreign market. The extent of its influence will depend on how persistently it is pursued. There will also be great need in the domestic market for continuous advertising of "Made in Canada" goods. Renewed advertising will re-establish the dealer and consumer market which during the war has been neglected or interfered with through the manufacturers' inability to maintain a continuous supply of goods. In foreign advertising a number of manufacturers could with advantage club together and make a more impressive showing than could be hoped for from individual effort.

Scientific and industrial research should be continued and gain every encouragement. The battle for business will in the future in some respects be more strenuous than in the past. We will need to take advantage of all the help that science can give in uncovering new economic resources.

Government assistance in the development of our foreign business might also be given through its commercial agents in the different countries of the world. These should be men trained to familiarity with export trade. Indeed, vocational training along that line could very well be carried out as a new activity of our Association.

Experience has shown that a country's export trade depends largely on its financial representation. Germany's success in the foreign market was obtained largely by her well distributed banking facilities. England, the United States and other large exporting countries have discovered this advantage also. Steps should be taken, and that early, to see that Canada is not behind hand in this respect.

PRESIDENT BULMAN'S SUMMING-UP OF THE SITUATION

BY judicious care in the development and handling of our home market, by the inauguration of a broad policy in the development of our natural resources and our Canadian industries, with well-arranged shipping facilities, judicious advertising and careful attention to business, the prosperous future of Canada should be assured. We should be able to look forward courageously and confidently to a quick and prosperous development. Even the war debt should be lost in insignificance in the midst of the manifold activities and successes that are in store for us.

News and Views of the Association

There will be found each month in this department a record of the various activities of the Canadian Manufacturers Association during the preceding month. The information is supplied to INDUSTRIAL CANADA officially, and all members of the Association are urged to acquire the habit of reading and checking over the contents of the department carefully in order to keep themselves posted on the work of the Association

December Meeting of Executive Council

The December meeting of the Executive Council was held in the Association's offices, Traders' Bank Building, Toronto, on the 19th ult. Mr. T. P. Howard, vice-president, occupied the chair, and there were also in attendance Messrs. J. F. Ellis, W. H. Shapley, R. L. McIntyre, S. R. Parsons, Alex. Saunders, G. H. Douglas, J. S. McKinnon, S. J. Williams, W. B. Tindall, A. Neighorn, H. I. Thomas, R. E. Jamieson, W. C. Coulter, J. S. A. Whealy, C. H. Smith, H. Bertram and S. Harris.

J. E. Walsh Now General Manager

Pursuant to the recommendation of the Executive Committee, the Executive Council at its December meeting approved the appointment of Mr. J. E. Walsh, manager of the Transportation Department, to the new position of General Manager of the Association. Mr. Walsh assumed the duties of the position at the first of the year. Mr. G. M. Murray, former general secretary, was requested to remain with the Association as Ottawa representative. Further changes in the organization are pending, but it is expected that a general statement on these changes and the future policy of the Association will be ready for publication in the February issue.

No Longer Assistant Secretaries

It has been decided that, in view of the fact that the General Manager has been given general supervision of the staff in all branches and departments and the secretary is no longer the chief executive officer of the Association, the title of assistant secretary should be abolished as applied to the secretaries of branches. The latter will now be designated as secretaries of the branches of which they are in charge.

Appointments, Toronto Branch

At a meeting of the Toronto Branch Executive, held on January 9, Mr. T. A. Hollinrake, of the A. R. Williams Machinery Co., Limited, was elected to the Executive, to fill the vacancy caused by the retirement of Mr. James Litster, who has withdrawn from the Litster Pure Food Company.

Messrs. J. S. McKinnon, H. H. Mason and George Brigden were elected representatives of the Branch upon the Advisory Industrial Committee of the Board of Education for three years ensuing.

Messrs. J. P. Murray and H. Macdonald were appointed to represent the Branch on a committee composed of representatives of Advertising Clubs, the Rotary Club, the Board of Trade and various other organizations, which will lay the foundation for an advertising campaign to be launched shortly to advertise Toronto.

New Member, Executive Committee

At the last meeting of the Executive Committee it was agreed to recommend to the Executive Council that an additional member of the Montreal Branch be added to the personnel of the Committee. The Council having given its approval to this recommendation, the Montreal Branch has elected to the Committee its chairman, Mr. C. Howard Smith.

New Chairman at Medicine Hat

At a recent meeting of the Medicine Hat Section of the Prairie Provinces Branch, Mr. Charles Pratt, president Medalta Stoneware Co., was elected chairman in the place of Mr. W. McNeeley, manager Alberta Linseed Oil Mills, and Mr. W. T. Scilley, manager Alberta Rolling Mills Co., was elected honorary secretary, vice Mr. J. E. Davies, manager Alberta Foundry and Machine Co., Limited. The Medicine Hat Section is one hundred per cent. strong, every manufacturer in the city being a member.

War Measures Restrictions

The Executive Council, at its December meeting, approved the following resolution regarding war measures restrictions submitted by the Executive Committee:—

"Whereas it is the expressed desire of the Government that the manufacturers should co-operate at this time in the development of export and domestic trade;

"And whereas the United States is discontinuing as rapidly as possible all war measures restrictions on trade, such as have been in force during the period of the war;

"Resolved, that this Association represent to the Government the desirability of removing, with the least possible delay, all war measures restrictions on trade and commerce."

The resolution having been forwarded to Sir Thomas White, Minister of Finance, the following letter was received from B. J. Roberts, secretary to the Minister:—

"I am directed by Hon. Sir Thomas White to acknowledge receipt of and to thank you for yours of the 23rd instant, and for the resolution passed in the above connection, which will have his attention."

Dominion Bankruptcy Bill

The Legislation Committee has authorized its counsel to take the necessary steps to have certain amendments introduced into the Dominion Bankruptcy Bill now before Parliament. In this connection it is proposed that the Exchequer Court be invested with such jurisdiction at law and in equity as will enable it to exercise original and auxiliary jurisdiction in bankruptcy proceedings under the Act, and that such jurisdiction may be exercised by a Division of the Exchequer Court to be called the Bankruptcy Division of the Exchequer Court. It is proposed

that the Lieutenant-Governor in Council may constitute any part of Canada a bankruptcy district for the purpose of this Act, and also that the Lieutenant-Governor in Council may appoint an accountant in bankruptcy, who shall be an officer of the Exchequer Court.

The functions of the proposed account in bankruptcy would include the issuing of reports, to be approved by the Court. He would pass upon the approved bonds of trustees, and would issue a report before a trustee could be discharged, which would ensure proper accounting and distribution of the trust funds passing through his hands, and also report upon every application for discharge of a bankrupt.

It is suggested that the accountant in bankruptcy should be attached to the Central Exchequer Court with powers similar to those of the referee or registrar, and would occupy a position similar to that of the Official Guardian in Ontario. An additional reason for using the Exchequer Court is that that Court has at present jurisdiction in bankruptcy over Dominion railway companies.

"Industrial Canada" Committee

At a meeting of the "Industrial Canada" Committee, held on December 31, plans were discussed for improving the reading matter in the publication and making it of still more value to the members of the Association. A number of articles were suggested and these will appear in early issues. Mr. J. F. Mackay, the new member of the Committee, was introduced, and his advice was of much value in the deliberation of the members.

Insurance Department Service

Twenty-five members consulted the Insurance Department on various matters during the month of November, and the following are the various points on which the Department was consulted:—

Examination of Policies and Policy Wordings...	3
Rates	4
Automatic Sprinkler Equipment	2
Standing of Companies	4
Inspection Service	5

Dominion Fire Prevention Committee

Three business sessions of the Dominion Fire Prevention Committee, which met in the capital on 13th ult., were held, and a number of resolutions were adopted. Among these resolutions was one recommending that a campaign of education be undertaken, through the press and by public meeting, with a view of urging upon the public the necessity of reducing fire waste. Another favored the introduction of systematic education in the schools by means of moving pictures, lectures and pamphlets. A third favored the Government inspection of buildings, insured and uninsured, for the purpose of detecting conditions likely to cause fires, such inspection to include not only physical construction, but other matters, such as clean linens, methods of disposal of waste, and regulations for the conduct of employees.

Other resolutions adopted favored insurance companies reporting to the Government all risks in which objectionable conditions exist, and which the owner or tenant, whichever is responsible therefor, fails to remedy; legislation requiring every person effecting insurance to fill out and sign a written application within a prescribed period after the insurance becomes effective; better municipal by-laws and the enforcement of existing by-laws; and legislation fixing personal responsibility for fires occurring after failure of the owners to comply with the requirements of inspectors appointed or authorized by the Government.

Recommendations were made for the wider adoption of sprinkler equipment and for uniform hose couplings. A discussion took place on many other aspects of fire prevention.

Mr. W. H. Shapley, Chairman Insurance Committee, C.M.A., was elected chairman of the Dominion Fire Prevention Committee and presided at the meeting.

Speakers for Toronto Branch

An interesting series of addresses will be delivered during the winter months before the Toronto Branch, if present plans carry. On January 13 the Branch had the privilege of hearing Peter Wright, representing the British Seamen's and Firemen's Union, deliver an address on "Labor Problems." At future meetings it is hoped that Principal Bruce Taylor, of Queen's University, Kingston, will speak on "British Reconstruction"; Prof. Henry G. Bell, director of the Soil and Crop Improvement Bureau of the Canadian Fertilizer Association, on "Intensive Agriculture and the Reconstruction Period"; Mr. W. C. Good, of Paris, Ont., on an agricultural subject and Dr. Mackenzie, of McGill University, Montreal, on "Industrial Research."

Ontario Insurance Commission

Apparently the insurance world will still have to exercise patience in connection with that report of the Ontario Insurance Commission. The latest news is that the Commissioner, the Hon. C. A. Masten, recently paid a visit to New York in pursuance of this enquiry, and interviewed a considerable number of underwriters and brokers. The report, when it is finally published, should be of great interest.

Engine and Thresher Section

The annual meeting of the Engine and Thresher Section was held in Toronto on 17th ult., when the following officers were elected for the ensuing year:—Chairman, R. Harmer, Sawyer-Massey Co., Ltd.; vice-chairman, J. R. Macdonald, The Macdonald Thresher Co., Ltd., Stratford.

A discussion took place regarding a possible solution of the existing difficulty in regard to damage to roads by threshing machines, when it was suggested that the local authorities should be encouraged to offer a series of prizes for the best design of cleat to fit on wheels which appears to offer an effective remedy.

Returns From Business Profits Tax

The total amount of assessments made under the Business Profits War Tax Act, to date, is over fifty-eight million dollars, of which over fifty-four million dollars have been collected. It is estimated that by the end of the fiscal year about sixty-five million dollars will be realized. This is more than double the estimate made in the budget speech, in which the Business Profits War Tax Act was introduced.

While the peculiar feature of this war emergency legislation has been the subject of extensive correspondence with our members, it may be interesting to know that there has been no case of appeal, a striking testimony to the patriotism of the manufacturers. At the same time it may be allowed that the assistance and advice rendered by the staff of the Association contributed to this gratifying result.

Dangerous Practices in Reciprocal Insurance

The November number of Best's *Insurance News* draws attention to a practice indulged in by some reciprocal insurance exchanges of issuing policies without obtaining the assured's signature to a power of attorney. The question raised is of great importance to many Canadian manufacturers who insure with American reciprocal exchanges, and we, therefore, venture to quote parts of the article. Dealing with the practice, followed by some exchanges of attempting, through the acceptance of a policy by the assured, to automatically appoint attorneys with power to exchange insurance on behalf of the policyholder, the journal says:—"This is an unsound practice and opposed to the entire theory of true reciprocal insurance, where each policyholder signs a power of attorney and issues a part of the risk assumed upon the property of every other member. In addition to such cash assets as may be in the treasury of an inter-insurance exchange the real strength of institutions of this character is based upon the responsibility and financial standing of the individual members who exchange insurance with others through some central office or manager acting under a properly executed power of attorney. If certain policyholders have not executed the necessary power of attorney it is reasonable to assume that policies are being issued and liability assumed by the exchange where other policyholders have not signed a power of attorney. If this constitutes the general practice of the management, the validity of the contracts and the financial responsibility of the exchange might be seriously questioned."



J. E. WALSH

Appointed to the newly-created position of General Manager of the Canadian Manufacturers' Association

"We believe that since a power of attorney is the sole basis for the exchange of indemnity between members of a reciprocal exchange it follows that if no power of attorney is executed, the contract becomes questionable, if not entirely worthless, although it is a question whether a reciprocal issuing such a policy would be able successfully to defend a suit to recover a loss thereunder upon the ground that the policy was void because no power of attorney was signed. Also, if no power of attorney was signed by certain policyholders they might decline to pay any assessment, giving as a reason that they were not bound by the acts of the attorney."

The journal goes on to say that some reciprocal exchanges seek business from insurance brokers under the pretence that the policies so issued are non-assessable. If this pretence is true and a heavy loss were to result from such brokerage business, the loss would fall on the unfortunate members holding assessable policies. If it is not true, then the members who accepted what they thought were non-accessable policies would have to pay the assessment. In view of the foregoing, it is clear that any reciprocal insurance exchange which issues a policy without demanding and obtaining a signed power of attorney is doing business on a very unsound and dangerous basis, and the value of its policies is questionable both from the fact that they may be invalid and that the exchange may be accepting liabilities far in excess of its assets.

Toronto Branch Entertains Guest

Mr. Octavius C. Beale, F.R.H.S., a prominent manufacturer of Australia, past president of the Associated Chambers of Manufacturers of Australia and vice-president of the British Empire Producers' Association, who recently visited Toronto in the interests of the latter organization, was entertained at luncheon at the National Club on 13th ult. by a representative gathering of members of the Toronto Branch.

Mr. Thomas Roden, Acting Chairman of the Branch, welcomed their guest stating that boys of Australia had fought side by side with boys of Canada, both of whom had done much towards maintaining the freedom of the world.

Mr. Beale spoke of the magnitude of the resources of the British Empire and the necessity of the manufacturers of the Overseas Dominions co-operating with the British Empire Producers' Association, the aim and object of which is to protect the interests of industries, which in the past had too often been lax in recognizing the wonderful heritages of the British Empire, with the result that the absolute control of some lines of raw material had fallen into the hands of Germany.

At the close of his address, Mr. Beale was asked by the Chairman to explain the attitude of the agriculturists of Australia towards Protection. Replying, Mr. Beale said the agriculturists were strong advocates of Protecton. The Government of Australia had done much towards encouraging the development of the agricultural industry by placing land at the disposal of the prospective farmer on terms that enabled him to go ahead, without a heavy financial burden hanging over him, during the period of development. The Government extended the payment over a term of years, and did not realize profits from the sale of land.

Already the British Government had taken steps to protect the supplies of basic material, a course also adopted by the Australian Government. As an example, the latter Government had legislated along lines that will keep the leather industry under its control for five years after the war. There was a way to do it; that way is visible to

manufacturers across the seas, by getting together and advising Governments in legislating along such lines. It will not do to depend entirely upon promises of Ministers and Departments of Governments. The British Empire produced everything, in adequate quantity, except cotton and copper. The latter two supplies, he believed it was possible for Canada to arrange with the Southern Republic for a just division.

A vote of thanks, moved by Mr. J. S. McKinnon, Second Vice-President of the Canada Manufacturers Association, and seconded by Mr. S. R. Parsons, Past President, was unanimously tendered to Mr. Beale.

Woollen Men After Export Trade

Preparations were made by the Canadian Woollen Manufacturers' Association to secure a share of the goods that will be needed in Europe in connection with reconstruction, at a meeting held recently in the King Edward Hotel, Toronto. Mr. R. Thomson, of the Hawthorn Mills, Carleton Place, announced that the purpose of the meeting was to consider the selection of samples to be placed with the organization's representative, who will seek European business. Mr. H. Macdonald, Assistant Secretary of the Canadian Manufacturers' Association, gave an address, in which he explained the arrangements to secure a satisfactory share of reconstruction orders, and the part to be played by the trade commission in securing and distributing this business.

Ontario Workmen's Compensation

Reporting to the December meeting of the Executive Council, the Legislation Committee, through its chairman, Mr. Sam Harris, stated that the members of the Committee had given careful consideration to the memorandum submitted by the Association's counsel on the subject of the amendments to the Ontario Workmen's Compensation Act, proposed to be applied for. After having given the subject very careful thought, the Committee directed counsel to make application for their enactment.

Among other matters the proposed amendments relate to:—

(1) Provision for having the accounts of the different group funds audited by auditors appointed by the Association representing the groups.

(2) Securing detailed statements of the payments in and out of the funds for the use of the safety associations.

(3) To provide an adequate appeal tribunal on questions of law arising in connection with the act.

(4) Recognition of the right of the Associations to represent their respective groups before the Board in matters of common interest.

Patents and Copyrights

As it is understood that consideration is shortly to be given by the Federal Government to the position of patent rights in Canada and our relations with Great Britain and foreign countries, the Minister of Trade and Commerce has been asked by the Legislation Commission to give the Committee an opportunity to be heard when the matter is taken up.

To Assist Russian Trade

The Executive Council at its last session approved the suggestion that the Tariff Department should take up with the Canadian Trade Commission the subject of assisting trade with Russia. It was pointed out that the United States War Board had organized an incorporated company, capitalized at $5,000,000, which amount has been paid in cash out of Government funds, for the purpose of prosecuting foreign trade with Russia. The view was taken that measures should be adopted by the Canadian Government which would furnish facilities to Canadians under present conditions for sharing in Russian trade. Owing to monetary conditions in Russia, business men in Canada are precluded at present from venturing on this trade as individuals.

British Preferential Tariffs

On December 11, representatives of the Association waited on the Government to urge that the whole power and influence of the Government should be exerted to secure tariff preferences among British countries, corresponding to the substantial British tariff preferences provided in the tariff of Canada. A brief memorandum was presented, and it was undertaken by the Government that a strong message on the subject would be cabled to the Government representatives in the United Kingdom. Subsequently a more detailed statement was presented to the Government, copy of which appears elsewhere in this issue.

Credit Arrangements on Freight Charges

At a meeting in our offices here, between representatives of the railways, the Canadian Railway War Board and interested shippers, the question of discontinuance of present credit arrangements for the settlement of freight charges was thoroughly discussed, and it was decided that this matter be postponed until March 1st.

In the meantime a revised circular is to be submitted by the Canadian Railway War Board, and the matter studied by a committee of interested manufacturers, with a view of submitting a proposal which will fit in with their business and assist the carriers in the elimination of any difficulties which they may be experiencing.

Will Promote Lumber Export

The Canadian Wholesale Lumbermen's Association, at a conference held in Toronto recently, discussed the methods to be employed in securing export business, having in view the plans of the allied nations with regard to reconstruction. Realizing that lumber will be one of the commodities in greatest demand, the association decided to make every effort to secure a share of this business.

Mr. O. C. Beale, past president of the Association Chambers of Manufacturers of Australia, who has been in Great Britain for the last three years, delivered an address. In connection with war work he was Vice-President of the British Empire Producers' Organization, which is the largest trade organization in the world. In his message to the lumbermen Mr. Beale dealt with the necessity of the Empire controlling its raw products and of developing reciprocal preference tariffs between the various parts of the British Empire. Australia is determined to establish such a fiscal policy, the speaker stated. To a limited extent, parts of the British West Indies and South Africa have acted along this line, but if British countries generally would admit British goods on more favorable terms than those of foreign manufacture, this would give a tremendous impetus to the output of Canadian manufacturers, Mr. Beale declared.

Mr. H. Macdonald, Assistant Secretary of the C.M.A., outlined the policy being pursued by this organization in connection with the after-war trade. "The manufacturers cannot too clearly understand that the permanent establishment of export trade must depend mainly on the co-operative effort of the manufacturers themselves," said Mr. Macdonald.

Assisting Thrift Stamp Campaign

The Association has been co-operating with Sir Herbert Ames, Chairman of the National War Savings Committee, in promoting the campaign throughout Canada for the sale of war savings stamps. Envelopes addressed to the 3,450 members of the Association were recently supplied to Sir Herbert, and in them the following letter was despatched:

"January 4th, 1919.

"Dear Sir (or Sirs):—

"Although the war is over and actual hostilities have ceased, some considerable time must elapse before Canada will recover from the four years of tremendous strain through which she has just passed.

"The period of reconstruction has its problems no less difficult and dangerous than those we faced and overcame during the days of war.

"Notwithstanding the remarkable success attendant upon the Victory Loan, and the large amount of money thus placed at the immediate disposal of the Government, it is altogether probable that further sums will be required if the State is to stand behind industry until normal conditions return.

"Having these facts and conditions in view, the Dominion Government, on the recommendation of the Minister of Finance, recently appointed a National War Savings Committee, and assigned to it the task of developing a War Savings plan. This the Committee has done and what is known elsewhere as a 'War Savings and Thrift Stamp Campaign' has been planned and introduced into Canada.

"The enclosed literature will explain the scheme in more detail. Suffice it to say that the project depends for its success mainly upon the manner in which the wage-earners throughout Canada receive and take up the War Savings plan.

"Doubtless your employees subscribed liberally for Victory Bonds, and it may be that they are still paying for these securities, with your assistance, on the instalment basis. We realize that such persons may, in some cases, find their capacity for saving already taxed to the utmost. Still, we feel that many, even of these, can do more, and if not immediately, may later on be induced to take up with the War Savings Stamp idea. For those whose earnings did not warrant their undertaking to pay for a Victory Bond, a War Savings Stamp, procurable by means of sixteen 25c. Thrift Stamps, should be an attractive proposition.

"In England and the United States War Savings Societies, by which the inspiration of group saving and group competition adds to the enthusiasm and makes of systematic and continuous saving a recreation and a pleasure have been formed in many industrial establishments, and have proved a help to the State and a benefit to the individual.

"May we count upon the co-operation of your firm to have this plan brought to the attention of your employees, so that everyone in your establishment, may, according to his or her means, be included in the Canadian War Savings Army?

"We should be glad to send you, either from Ottawa or from any of the Provincial War Savings Committees, whose headquarters are at Vancouver, Calgary, Regina, Winnipeg, Fort William, London, Toronto, Montreal, St. John, Halifax and Charlottetown, a supply of posters, literature, War Savings Certificates or Thrift Cards. The enclosed envelope contains information regarding the formation of a War Savings Society. The stamps are obtainable at all banks, money order post offices and at the principal railway ticket offices.

"Should you care to purchase and resell at cost to your employees, your bank will supply you with any quantity of stamps that you may need.

"In giving this movement your hearty support you will accomplish three things:—

"1st. Help your Government to keep industry moving during the reconstruction period.

"2nd. Enable your employees to make a good investment by an easy and attractive method.

"3rd. Assist in cultivating among your people the habit of thrift, upon which Canada's future prosperity absolutely depends.

"Thanking you in anticipation for your consideration of this matter.

"I remain,

"Very sincerely yours,

"HERBERT B. AMES,
"*Chairman.*"

Sir Herbert Ames states that specimen posters will shortly be sent to each individual establishment, with a request that the management display them prominently.

No German-Austrian Goods Wanted Here

Copy of Resolution passed by the Executive Council of the Canadian Pulp and Paper Association

Whereas the state of war existing between the British Empire and the Central Powers of Germany and Austria has demonstrated to the world the utter impossibility of reconciliation until such time as a change of mental attitude is shown towards the accepted standards of moral and commercial decency.

Be it resolved that every pulp and paper manufacturer of Canada shall be asked to refuse to purchase any goods of German or Austrian manufacture and that the strictest scrutiny shall be given to all goods stated to be of Swedish, Dutch or Swiss origin, and

Further that every purchasing agent shall be notified of this resolution.

Be it also resolved that a copy of this resolution be forwarded to all Allied Trade Associations with the request that it receive similar attention.

Their Pledge

Stand taken by the Pulp and Paper Manufacturers of Canada with respect to the purchase of goods of German-Austrian manufacture

Export Trade of United Kingdom

The following memorandum, received by the Commercial Intelligence Department, deals with the latest developments in connection with the export trade of the United Kingdom and the release of raw materials and semi-manufactured goods:—

His Majesty's Senior Trade Commissioner in Canada and Newfoundland (Mr. G. T. Milne) has been instructed by the Imperial Department of Overseas Trade in London to give publicity to the terms of a cable despatch dated 24th December, which he has received from his Department.

Since the armistice was signed many restrictions on commerce have been withdrawn, while in the case of those which remain licenses are being granted much more freely than previously. Particulars regarding these relaxations will be published weekly in the *Board of Trade Journal*, the official organ of the Imperial Government for notices regarding trade. Orders placed during the war period now have good pros-

pects of being executed, and arrangements for new business should be made without delay.

The following relaxations in particular should be noted:—

1. Permits to manufacture and Priority Certificates in connection therewith are no longer necessary.

2. Firms are at liberty to accept civil or commercial orders for immediate execution, thus freeing the engineering industry, among others, for commercial work.

3. All the principal kinds of raw materials may now be used for the commercial manufacture of goods for export, but these raw materials themselves may not be exported in certain cases without licenses. Among those to which this condition applies are the following:—Aluminum, antimony, brass, copper, iron, lead, nickel, spelter or zinc, steel, tin.

In general, restrictions on the export of manufactured goods have been removed, while they have been retained in the case of raw materials.

The following list indicates the most important items the export of which was formerly prohibited to all countries, but are now permitted to be exported to any part of the British Empire:—

Articles of aluminum.
Articles—manufactures of asbestos.
Belting, cotton—including belting impregnated with balata or rubber.
Bicycles—complete.
Bicycle tyres and parts.
Boots and shoes (except children's with soles or uppers of leather).
Brooms.
Brushes (except tooth brushes).
Copper—and manufactures of—except wire, bars, plates rods, sheets, strips, tubes.
Galvanized sheets—corrugated or flat.
Grindstones.
Glass for optical instruments.
Hand tools for agriculture.
Holloware, domestic—or iron or steel plate.
Iron and steel rivets, nuts and screws.
Iron and steel wire cloth.
Incandescent mantles and rings.
Jute cordage and twine, padding and webbing, twist and piece goods.
Linoleum.
Magnesite and magnesite bricks.
Magnetos and parts.
Nails (wire).
Photographic materials.
Rubber manufactures—except surgical gloves.
Surgical bandages and dressings.
Steel sheets (black).
Tools (small).
Wagons and carts—and parts.
Wool and hair—manufactures of—not to raw wool or yarns.

Certain factors will continue to hamper the export trade, notably (1) shortage of labor till the army is demobolized, (2) shortage of tonnage, (3) the need of reorganization of plant in certain industries before resuming normal work, but it is considered that the effect of these factors will diminish greatly in a few months.

Activities of the Prairie Provinces Branch

By G. E. CARPENTER
Secretary, Prairie Provinces Branch

ON December 16th the members of the Branch in Winnipeg were favored with an address from Mr. O. C. Beale, vice-president of the British Empire Producers' Association, who spoke very strongly upon the desirability of the raw materials and resources of the various dominions of the British Empire being preserved to fill the requirements of such dominions before any surplus in any of the dominions is placed upon the open market. He quoted numerous instances to show that at the opening of the great war enemy nations had controlled the output of raw materials from various dominions. He outlined the manner in which this control had been taken away from such enemy governments and said materials apportioned among the Allies for their requirements. He made an urgent plea that this system should be continued rather than that raw materials should be sold by the various dominions to the highest bidders regardless of what hands they fell into.

Among other interesting things, Mr. Beale stated that the Trades and Labor Congress of Australia had supported the Chamber of Manufacturers in a request to the Government for the subsidizing of the developments of certain raw materials and for the protection of the products thereof from outside competition.

Payment of Freight Charges

The order of the Canadian Railway War Board providing that freight charges should be paid in cash at the time of delivery, excepting that in the case of reputable firms a credit of 96 hours would be given where a satisfactory surety bond was signed, met with such a general protest from members of the Branch that at a meeting of the Transportation Committee held on December 9th the secretary was instructed to wire the manager of the Transportation Department.

The Transportation Committee of the Association had a meeting with representatives of the Canadian War Board in Toronto on December 20th, with the result that the latter agreed to postpone the question of credits until March 1st. In telegraphing this information Mr. Walsh stated a further conference would be held and, in the meantime, it is hoped that some arrangement will be made which will be mutually satisfactory to shippers and railways.

Workmen's Compensation

The Workmen's Compensation Board for the Province of Manitoba has issued a notice to the effect that the Board will sit on January 21st to consider an application by the Western Casualty Underwriters' Association to vary existing rates of insurance and that the rates as fixed by the Board pursuant to such hearing shall have effect as of the date of January 1st, 1919. The Workmen's Compensation Committee is obtaining data to enable it to deal with the subject. Mr. J. B. Hugg, the solicitor of the Branch, will represent it at the hearings. If there is any information in the possession of members, which they consider would be of assistance, they are requested to communicate with the secretary.

Elevator Act

The Elevator Board, under which the Passenger and Freight Elevator Act is enforced, has decided that in view of four fatal accidents occuring on freight elevators during the past year, it is necessary that some steps be taken to provide greater protection to life in the operation of freight elevators. A meeting was recently held by the Board with representatives of building owners, insurance companies, and this Branch, when changes in the proposed Act were explained by the Board. In short, they provide that freight elevators must only be run by licensed operators, not necessarily one-man to an elevator, but every person that operates freight elevators must be licensed. The Elevator Board agreed to furnish copies of the proposed amendment to the Branch in order that they may be studied by its members, and to subsequently call a further meeting when its views might be

expressed. In the meantime, the Board agreed to change the appeal from the decisions of elevator inspectors, which, under the present Act, is to the Secretary of the Bureau of Labor, to the full Elevator Board.

Industrial Relations

At the last meeting of the Executive Committee the question of relations between workmen and employers was discussed at great length with the result that the following gentlemen were appointed a committee to investigate and report upon industrial relations: Messrs. E. Parnell, L. R. Barrett, Wm. Martin, W. G. Fraser, and J. B. Hugg, K.C. This Committee is giving a lot of time and careful study to this intricate problem and would welcome a communication from members of the branch who have any ideas or data which might assist the Committee.

It is quite likely that the Government of Saskatchewan may introduce a Minimum Wage Act for females, at this session of the Legislature—possibly along similar lines to the Manitoba Act. It has been stated that some legislation upon this subject may be introduced in the Dominion Parliament by Hon. G. D. Robertson, Minister of Labor, but nothing definite is known at this writing. Of course a Dominion Act embracing employees throughout the length and breadth of the land would overcome one of the objections to this class of legislation. Officers of the Association in Saskatchewan have been furnished with particulars, and further information may be obtained by members by communicating with them or this office.

Export Agencies

During the time of reconstruction many members will no doubt be approached by individuals with propositions for increasing their sales abroad. Some of these will be legitimate and well worthy of support; others quite the reverse. One of the latter has been uncovered by the Commercial Intelligence Department as a result of a communication from a member of the branch, showing the benefit to be derived by using this Department to obtain information upon such matters.

Maritime Manufacturers Hold a Conference

Meeting at Amherst, N.S.

A CONFERENCE of the business men of the Maritime Provinces, held under the auspices of the Maritime Branch of the Canadian Manufacturers' Association, was held in Amherst, N.S., on December 11th. The chair was taken by Mr. W. S. Fisher, of St. John, chairman of the Branch, and an address of welcome was tendered by Mr. T. L. Milner, Mayor of Amherst.

Mr. Fisher, in replying to the address, briefly outlined the programme of the meeting and its objective in the immediate future. Mr. Fisher spoke of the men present, who spelt Big Business in plain letters, and he characterized the meeting as the best held in the history of the Association. The advantages and opportunities of the Maritime Provinces for export trade were quoted by Mr. Fisher, and he concluded with a few words upon the resources of the three provinces of Eastern Canada.

Mr. K. H. Smith, District Engineer, Dominion Water Works Branch, who was to speak on "The Progress of Survey of Maritime Water Powers," was unable to be present. Fortunately he forwarded a short paper which was read by Mr. H. R. Thompson, Secretary of the M.B.C.M.A. This address was of decided importance, and was followed with attention. "White Coal" spells conservation of coal, and forests. Mr. Smith's paper gave statistics relative to the necessity of hydro-electric development.

Other speakers at the meeting included Sir John Willison, president Canadian Reconstruction Association, who dealt with "Reconstruction Problems"; Watson Griffin, of the Commercial Intelligence Department, Ottawa, who spoke on "Possibilities for Industrial Development in the Maritime Provinces"; J. Grove Smith, Commission of Conservation, Ottawa, whose theme was "Canada's Fire Waste and Its Prevention"; and F. H. Sexton, Principal Nova Scotia Technical College, who dealt with "Technical Education in Nova Scotia."

Maritime Canners Form First Trade Guild

Outcome of Amherst Conference

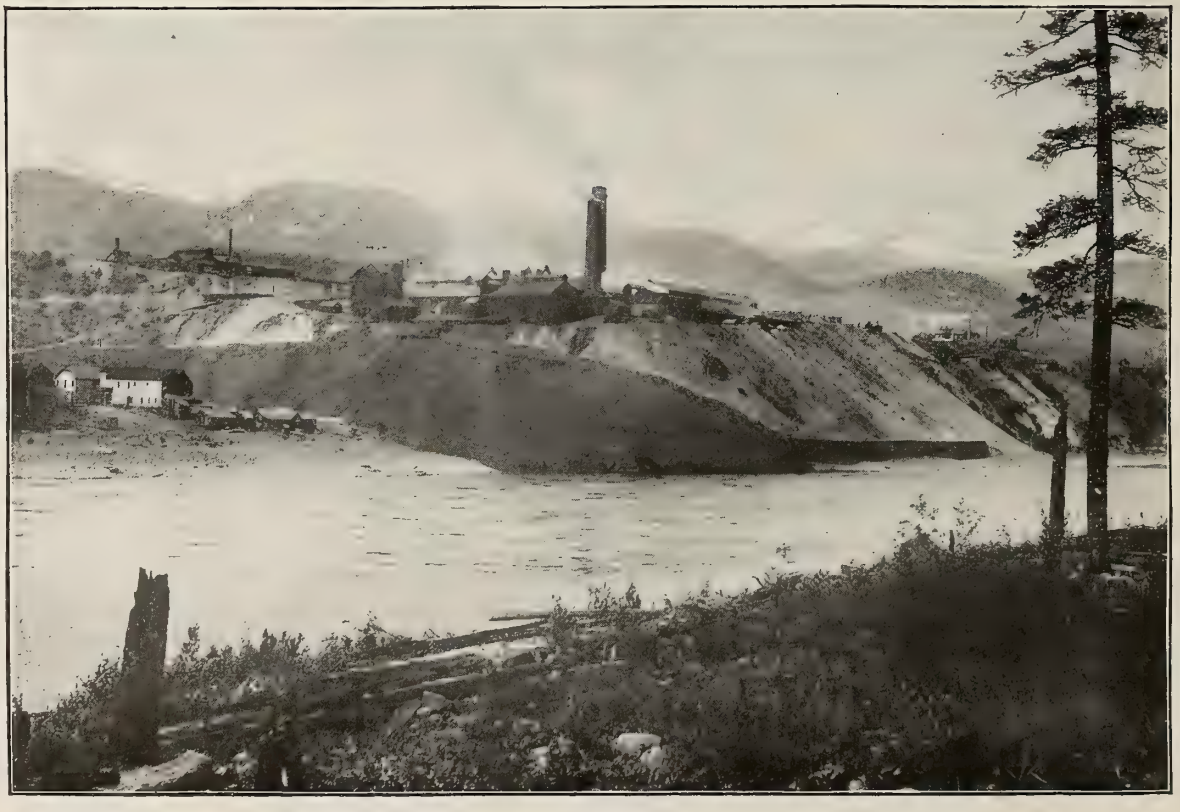
THE actual formation of the first Canadian trade guild for scientific and industrial research purposes is now in process. As a result of a conference at Amherst (N.S.), last month, of the Maritime Province Canners' Association, Dr. A. B. McCallum, administrative chairman of the council for scientific and industrial research, the association decided to form a federally incorporated research guild. Some twenty-five canning firms were represented at the meeting, which was held under the chairmanship of Hon. Senator John McLean, of Souris (P.E.I.) A committee headed by Mr. R. O'Leary, of Richibucto (N.B.), was appointed to arrange for the organization of the guild and $5,000 was voted towards research work in co-operation with the research council at Ottawa.

Immediate problems of research include investigations as to reasons for discoloration of products of cans in lobster and sardine canning, the bacteriology of spoiled products, etc. It is estimated that from five to ten per cent. of the lobster and sardine output of the Maritime Provinces now goes to waste through spoiling, involving a loss of tens of thousands of dollars. It believed that this waste can be prevented by the application of new scientific knowledge to canning processes. The combination of all the canners into one guild for research in solving their common problems of deterioration, production, will, it is believed, have far-reaching effect on the whole fishing industry of Canada.

The Maritime canners have taken the lead in Canada in actually going ahead with the trade guilds for a research scheme which is being urged by the research council. Other groups, such as the textile industry, the clay products industry, the rubber manufacturers, etc., are also preparing to adopt the research idea as now being rapidly developed in the United States and Great Britain. In Great Britain such guilds have recently been established with resultant benefit in improving manufacturing processes, eliminating wastes, and utilizing by-products to best advantage, which can already be measured by the hundreds of thousands of dollars.



An Asbestos Quarry at Black Lake, P.Q.



Copper, Zinc and Lead Smelter at Trail, B.C.

The Mining and Metallurgical Industries*

The Future of the Mining Industry of Canada Dependent on Future General Prosperity—Mining and Metallurgy Second Only to Agriculture as a source of National Wealth—A Review of the Production of the Leading Minerals and Metallurgical Products during the War Period

SECTION I—MINING INDUSTRY

By WYATT MALCOLM

Geographical Survey, Department of Mines, Ottawa

THE problem of the condition and prospects of the mineral industry of Canada is one that cannot be regarded as independent of the other industrial problems of this country and of the world at large. The success or failure of this industry is bound up with the success or failure of other staple industries; they are interdependent in their relationships. The availability of capital for investment, the quantity and stability of labor, the cost of supplies, and market conditions are factors involved.

The mining industry is intensely interested in the question whether capital will be forthcoming for investment in new enterprises. Large sums of money were spent in Canada during the war and manufactures find themselves in sound financial condition. High wages have beeen paid, but unfortunately much wealth has been dissipated in expensive luxuries. The merchants have reaped their share of the profits. Farmers have found a ready market at high prices for all their produce. The excess profits tax and income tax have been low, and the Government restriction on the issue of stocks and bonds has tended to conserve our wealth. The readiness with which the Government loans have been oversubscribed is indicative of the accumulation of considerable capital, but how much of this will be available for legitimate mining cannot be foreseen. Nor can we guess whether Canadian mining investments will prove attractive to a part of the enormous credit acquired by the United States during the war.

Labor Stringency Relieved

The closing of munition factories is already resulting in a relief of the labor stringency in some of the mines. The future of the labor situation is, however, uncertain and may not be quite so roseate as some optimists would lead us to believe. The feverish anxiety manifested over the problem of the repatriation of our returning soldiers is an indication of the feeling that some difficulty may be experienced in their reabsorption into civil life. The return to normal conditions and lowering of prices will necessitate a readjustment of wages. This readjustment will no doubt be gradual, but will not take place without a struggle. Intelligent labor will recognize that Labor and Capital must come to a compromise in order that our industries may compete with foreign industries in our home market and abroad. But even in this country we occasionally hear the rumbling of Bolshevism; we will be fortunate indeed if it break not from its storm centre and overwhelm the allied nations. Demobilization of the soldiers of the British Empire and her allies has only begun, and there is much uncertainty about the future relations of Capital and Labor.

Another factor that makes it hard to foresee the future of the mining industry is that of Government control. Governments of the most democratic countries have shown that in cases of extreme emergency they can assume most autocratic powers. They have demonstrated a power and a willingness to fix prices, exercise pressure on property-owners for an increase in the production of certain minerals, restrict the application of minerals and metals to certain manufacturers, allot shipping to such commodities as are deemed most essential, and enter the market for the purchase of minerals for distribution to companies applying them to desirable ends. Powers once exercised by a Government can be exercised again; the desire and the ability to wield a heavy club grows with its wielding, and private companies recognize its potency. Great crises call for prompt and energetic action. To what extent great crises may arise in the near future or how great the Government authorities may fancy these crises to be, cannot be conjectured.

Growing Mineral Production

In nothing is the mining industry so dependent on the general prosperity of the country as in the marketing of the products. Metals and minerals enter into construction work and into manufactures of all kinds. The discussion of the prospects of a continued period of prosperity through which a demand would be created for the products of the mines lies outside the scope of this article. It involves a great number of perplexing factors; and modifying events take place so unexpectedly and so rapidly in these times of instability that it is unsafe to predict the condition of affairs a year or even six months ahead.

If a steady market with reasonable prices prevails, the mines of Canada can be counted on to do their share in the reduction of the war debt. Numerous rich and extensive ore bodies are being exploited at present, the operations are conducted by competent engineers, and development has proceeded in such a manner as to maintain the working capacity of the mines. There are also wide areas unprospected in which numerous other ore bodies of commercial importance are likely to be found. The following figures, giving the total value of the mineral production of Canada for the last three years and for three years preceding the war, will show the importance and growth of the industry:

1911	$103,220,994
1912	135,048,296
1913	145,634,812
1916	177,201,534
1917	189,646,821
1918	220,000,000

To throw light upon the present condition and prospects of the mining industry the status of a few of the more important minerals will be presented.

Coal is one of Canada's most important minerals and it is estimated that there is a reserve of over a million million tons. The production comes chiefly from the provinces of

* Published with permission of the Deputy Minister, Department of Mines, Ottawa.

Nova Scotia, Alberta and British Columbia. The output of the Nova Scotia mines dropped very considerably during the war, that of 1918 being about 29 per cent. less than that of 1913. The decrease was due in great part to the enlistment of expert miners. The return of the men in 1919 may result in increased activities, particularly during the latter half of the year. The year 1918 saw a very important increase in the production of coal in Alberta, so much so that Nova Scotia will for the first time probably surrender to this province the leading place in coal output. This increase is partly due to a very considerable expansion of the home market through the shortage in shipments of United States coal.

Revival in Gold Mining

A promising feature of the Canadian coal industry is the fact that the war has taught us that greater reliance must be placed on our own resources than has heretofore been done. The capacity of the coal mines of the whole country is greatly in excess of output, it being estimated that the Alberta mines with present development could double their production. The future, therefore, depends on the market, the cost of supplies and the stability of labor.

The return of peace and the restoration of normal conditions will bring about a brisk revival in gold mining. The difficulty of procuring labor and the high cost of equipment and supplies during the war necessitated the shutting down of great numbers of mines. Only those producing fairly high-grade ore were able to continue operations and they were run much below capacity. So seriously has the gold production of the world been hampered that conferences of miners have been held and Government commissions appointed to consider measures for increasing the yield. Suggestions have been made that the industry be relieved of taxation and of marketing restrictions, that a bonus be given, and even that a change be made in the standard price of the metal.

Though the production in many Canadian gold mines was suspended and in others was greatly reduced, there are many large properties on which development work has been actively progressing. The working capacity of the mines has thus been increased and the return to normal conditions is bound to increase the gold output. The closing of munition factories has already had a beneficial effect on the labor situation. Labor is now more plentiful and it is of a quality superior to that which was available during the war. Already there have been cuts in the prices of cyanide and steel, and the cost of explosives is likely to drop soon. There is, moreover, a fascination in the yellow metal that attracts capital, which would shy at the grosser minerals. Thus, not only are the developed mines likely to renew activities, but there is a good chance that attention will be directed to undeveloped deposits and prospects.

Nickel Output Grows

During the war periods the production of nickel greatly increased, the tonnage for 1918 being nearly double that for 1914. It is stated, however, that even when the war was at its height greater quantities of this metal were employed in general construction than in strictly war work. Under peace conditions the yield was rapidly increasing; in 1905 the yield was 9,503 tons; in 1910 it was 18,636 tons, and in 1913 it was 24,838 tons. Ontario produces over three-quarters of the nickel of the world. There are two strong producing companies, and a third company is carrying on development work and erecting a smelter and refinery. The ore reserves reach into millions of tons. The industry is in a very stable condition, the mining capacity is large, and the management is in competent hands; the market will depend to a great extent on the degree of prosperity that peace brings.

In spite of the scarcity of labor the mining of copper was greatly stimulated by the high prices prevailing during the war, and the yield was much greater than during peace times. The great proportion of Canadian copper is obtained from the nickel-copper deposits of Sudbury, Ontario, and from large low-grade deposits of British Columbia. In Ontario there are great reserves of ore, but as the copper is intimately associated with the nickel the production will depend on the demand for nickel. In British Columbia there are also immense reserves, particularly in the Anyox and Britannia mines, and on Copper mountain, where a large sum of money has been spent in developing an enormous body of low-grade ore. The return of peace will likely relieve the labor situation and cheapen supplies, but the continuance of the large yield will be dependent on market conditions. Should reconstruction be rapid and general prosperity prevail, there will be a demand for this metal in the peaceful industries; should, on the other hand, a scarcity of capital for investment become manifest and industrial depression result, copper production is likely to fall off. It is known, too, that there are at present large accumulations of copper in the hands of great producers or in transit, and governments find themselves at the close of the war with large stocks of such metals as copper, lead and zinc, on hand. There will no doubt be disposed of in such a waay as to throw as little confusion as possible into the market, but they are bound to have an effect.

Although the quantity of silver produced is declining the value of the yield for 1918 is probably higher than that of any previous year, the value per ounce for 1918 being nearly double what it was at the beginning of the war. The high prices prevailing and the increase of available labor are promising features. These render it possible to treat ores of lower grade than formerly and to cope with transportation difficulties.

The Output of Asbestos

Asbestos, which is mined chiefly at Thedford and Black Lake, Quebec, is one of the minerals that increased greatly in output during the war. Its convenience and suitability for building purposes found for it a strong market in England. Although the yield has been increased, development work in the operating mines has not been neglected. A large sum of money has also been spent in developing a property at Coleraine, Quebec, where a big deposit of mineral of excellent grade occurs. The asbestos mines are, therefore, in a good position to cater to a large market, and the prospects are bright. The recent placing of a large order by the British Government for Canadian lumber is indicative that construction work is to be proceeded with and there is likely to be a good demand for the quality of asbestos known as shingle stock.

Structural work of all kinds has been at a standstill for several years. The promptness and rapidity with which renewals will be made depends much on the purchasing wealth of the country. It is unsafe to say whether there will be a brisk demand for structural materials such as steel, cement, stone and clay products, or whether we shall decide that existence for some time under present conditions with a gradual recovery is preferable. The optimist sees the following promising features: There is a great dearth of dwelling houses; the Federal Government is prepared to make loans to the extent of $25,000,000 to correct this condition, and the provinces and municipalities may supplement this amount; manufacturers are coming to recognize that good housing serves as a great stabilizer of labor; farmers are prosperous and are likely to keep their buildings in good repair; municipalities will resume work on sewers, sidewalks and pavements; there may be a great increase in power



Electrolytic Lead Refinery at Trail, B.C.



Gypsum Quarry, Cheverie, N.S.

development; the construction of the Welland Canal is to be taken up, and harbor improvements, highwaay construction, and other public works will probably be undertaken.

The summer of 1919 should be a period of vigorous prospecting. The call of the army greatly depleted the ranks of the prospectors, who are a class of men of the more venturesome type. Some of these men will be returning to their former occupation and with them will come many a man whose army experience has unfitted him for settling down to the humdrum of ordinary industries, and wo will be attracted by the lure of the wild. It remains to be seen whether sufficient speculative capital will be available to furnish the prospector with his few necessary supplies, to induce him to put forth his best efforts, and to test his discoveries and prove their commercial value.

There are large areas in anada wholly unexplored—900,000 square miles exclusive of the inslands of the Arctic, and there are still more extensive areas unprospected. Canada's war activities have given her wide advertisement, and there are indications that extensive exploratory trips are being planned by Americans and others. Such explorations will no doubt increase our knowledge of sections of country favorable for prospecting. Intensive prospecting, however, in areas in the vicinity of transportation routes is likely to be more profitable, since deposits of only very high-grade ore permit of economic mining in places remote from transportation.

Reference might be made to a great number of minerals other than those already cited; such reference would, however, merely serve further to illustrate the present satisfactory condition of the industry, and is unnecessary. Even some of the usually less important Canadian minerals, the production of which was stimulated during the war by special demands or by scarcity of shipping, are in a promising condition. The development that has been carried on and the success in amortization of plants may enable the operators to compete with other countries in the open market.

A sufficient number of illustrations have been given to show that the future of the mineral industry of Canada is dependent on future general prosperity. There are large reserves of minerals to be drawn upon, and under able management development work has been progressing. Whether the demand for materials of construction and for metals and minerals for manufacturing purposes will be great enough to stimulate their exploitation it is impossible to predict.

SECTION II—METALLURGICAL INDUSTRY

By G. C. MACKENZIE

Mines Branch, Department of Mines, Ottawa

THE effect of the war on the Canadian mining and metallurgical industries has been to substantially increase production in practically every particular with the exception of gold and silver. Activity in mineral and metal production has mainly been devoted to the securing of supplies for munition purposes, but there is also recorded a marked increase in the production of other minerals which, not directly entering into munitions, were nevertheless necessary for their manufacture. A comprehensive survey of the industry is prohibited through lack of space, and therefore only a few of the most important metallurgical products will be commented upon.

Nickel Production

The most important Canadian metallurgical industry is undoubtedly that of nickel, in which particular this country leads the world, supplying 85 per cent. of the world's requirements. Previous to 1918 Canadian nickel ores were partially manufactured in Canada and subsequently refined in the United States and England, but now this metal, which has played such an important part in the recent European struggle, is being refined within the Dominion, and there is every possibility that when plants now under construction are completed that the greater proportion of Ontario nickel ores will be refined in Canada.

In July, 1918, the refining plant of the International Nickel Company of Canada, at Port Colborne, Ontario, was completed and put into operation for the treatment of nickel-copper matte from their Sudbury smelters. This refinery, which has been built with a capacity of approximately 10,000 tons of refined nickel and 4,000 tons of refined copper annually, has been constructed with the view of subsequent enlargement to meet future demands, and will manufacture refined metals for the British Empire and foreign markets. The old plants of the International Nickel Company in New Jersey will continue to refine matte from the Sudbury smelters to meet requirements in the United States.

The Mond Nickel Company, operating smelters at Coniston, Ontario, have considerably increased their production of copper-nickel matte which, however, continues to be exported to the Company's refinery in Wales.

The British America Nickel Corporations have been actively developing the Murray mine, in the Sudbury District, where they are installing two blast furnaces with a daily capacity of 1,200 tons of ore. The matte from these furnaces will be blown in three of the largest Pierce-Smith type of converters and shipped to their refinery situated at Deschenes, in the Province of Quebec, about five miles from Ottawa. Construction of the refinery has progressed rapidly since the spring of 1918, and it is expected that the plant will be in operation before the end of this year. The process of refining adopted is the Hybinette method of electrolytic refining, which will require a large amount of electric power already developed by Ottawa Hydro-Electric companies. The process will be carried out on a scale sufficient for the production of 10,000 tons of refined nicked and 6,000 tons of refined copper annually. The small amount of precious metals—silver, gold and platinum—which occur in the matte, will be almost entirely recovered and subsequently separated one from another in a precious metal refinery. The buildings are constructed with concrete columns supporting walls of hollow tile; this construction being desirable from the point of securing even and desired temperatures necessary for successful electrolytic refining. The construction of the plant has been carried out with a view to solidity and low cost of operation and when completed will be one of the finest refineries of its size in the world.

Nickel in Steel

To the uninitiated nickel is usually associated only with the manufacture of armour plate, ordnance and projectiles; but of late years this metal has been found to have the greatest value in industrial steels of all kinds, more especially rails for terminal points, automobile steel, safe steel, and in general all structural steel requiring great strength and resistance under excessive duty.

The manufacture of iron and steel products has made great strides in Canada during the war, many new open

hearth and electric furnaces having been installed mainly for the production of munition steel of which Canada has contributed no mean share. Probably the most important recent development in this industry is the installation at Sydney of plate rolling mills, designed to furnish material for the rapidly growing Canadian shipbuilding industry.

Canada is not at present an important producer of iron ores, producing probably less than 12 per cent. of her total requirements for the manufacture of pig iron. This deficiency is made up by imports from the United States and Newfoundland, and, as it is doubtful that the present known Canadian ores can compete successfully with imported ores, the point should not be lost sight of that, if this country is to become a serious factor in the iron and steel markets of the world, Canadian iron ores must be found that will have a greater merchantable value than anything discovered up to the present time. In any consideration of Canada's iron ore resources, it should be remembered that the area of the Dominion is very large and that much of it is practically unexplored as far as its iron ore possibilities are concerned. In the comparatively unexplored regions of the north large areas of iron-bearing rocks occur at a number of points, but on account of their inaccessible location there is at the present time small inducement for a thorough exploration in search of ore bodies.

Steel Works for B.C.

Within the past year the people of British Columbia have been asking for Government assistance for the erection of iron and steel works on the Pacific Coast, and while there is every indication that magnetic iron ores occur in British Columbia in considerable amounts, there is a notable hesitancy on the part of capital to assist in such an undertaking. Making due allowance for lack of development and for all doubtful and uncertain factors, it is still possible to say that there is in the aggregate in the known magnetite deposits of the coast and interior district a sufficiently large tonnage of ore available for a local iron industry when conditions justify its establishment. There is little doubt also that active exploration would disclose many bodies of iron ore at present unknown. There should be no difficulty in securing an adequate supply of both fuel and flux, but it is probable that the fuel would be inferior to the better grades of Pennsylvania coke, and it is certain that owing to the labor conditions within British Columbia that the cost of assembling the raw materials, ore, fuel and flux would be higher than is generally supposed.

An important advancement in Canadian metallurgy was made in the latter part of 1917 with the completion at the British Columbia Trail smelters of the Consolidated Mining and Smelting Company of Canada, of an electrolytic refinery for both copper and zinc. This plant was erected and put into operation primarily for the purpose of supplying refined copper and zinc to the munition industries, and has subsequently demonstrated its value as an established branch of the Trail smelters, which have long had the reputation of being one of the foremost of Canadian metallurgical works. The Trail plant now produces electrolytic lead, copper and zinc of a high standard, as well as a considerable quantity of refined silver and gold.

Of particular importance to Canadian metallurgical industries is the advancement made within the past year or so in the use of domestic magnesite from the Grenville District, Province of Quebec. Magnesite is a basic refractory mineral essential for lining open hearth and high temperature electric steel furnaces. The war having shut off all supplies of Austrian and Grecian magnesite from Canada and the United States, attention was turned to the occurrences of this mineral in Quebec, and prospecting soon developed the fact that there was a considerable tonnage available. It had always been assumed that the Canadian mineral, on account of its high lime content, could not be used as a basic refractory, but it has now been demonstrated, through force of necessity, that Canadian magnesite, when properly treated, makes furnace linings comparable with the best Austrian magnesite linings hitherto used. It is questionable if the Canadian mineral can be employed for the manufacture of magnesite bricks, but wherever the Canadian product can be used as a rammed or burnt-in-lining its durability has been proved beyond question.

Many Metals from Ontario

The smelting of Northern Ontario complex silver-cobalt-nickel ores by the Coniagas Reduction Company, Limited, at Thorold, and the Deloro Smelting and Refining Company, Limited, at Deloro, both in Ontario, has developed an important and growing industry producing metallic cobalt, nickel, arsenic, and bar silver, in addition to which there is also produced a considerable quantity of cobalt and nickel oxides and white arsenic.

Bauxite, the principal ore of the metal aluminum, has not been found in Canada up to the present time, but extensive works of the Northern Aluminum Co., at Shawinigan Falls, Que., are producing aluminum from ores imported from the United States and France, and formerly from Germany. A mill for the manufacture of wire and cables is operated by the same company.

Of Canadian metallurgical industries, one of the most important from the standpoint of present and future developments, is that of the ferro-alloys industry, and the most important product of this industry in Canada so far has been ferro-silicon. The pioneer in this branch of electric metallurgy is the Electro Metals, Limited, of Welland, Ontario, which commenced operations in 1907, and have since that date built up what is undoubtedly the most important and largest electric ferro-alloy industry in the British Empire. Ferro-silicon is an essential in the manufacture of steel, and for this purpose large amounts of 50 per cent. silicon content are consumed in Canada and shipped to all parts of the British Empire as well as foreign countries. The war developed a requirement for 85 per cent. silicon content, to be used in the manufacture of balloon gas, and many thousand tons of this high silicon alloy were shipped to England for that purpose. The plant of the Electro Metals, Limited, is equipped with eight furnaces capable of turning out bout 48,000 tons of 50 per cent. ferro-silicon if operated to full capacity. The company also operate the largest electrode plant in the British Empire, with a capacity of 25,000 tons yearly of all sizes of carbon electrodes which, in addition to finding a considerable market in Canada, are shipped throughout the world.

Second Only to Agriculture

The mining and metallurgical industries of Canada are today second only to agriculture as a source of national wealth, and their development depends in large measure upon wise and farsighted encouragement from both the Federal and Provincial Governments. Canada's future wealth depends upon the ability of her people to develop her national resources and export the products thereof, and because of her small population and tremendous areas of mineral lands awaiting development every assistance possible, consistent with national requirement, should be given to this great basic industry.

In 1890, Canada's mineral products were valued at $16,763,353. In 1900 the figures were $64,420,877. For 1913 the year previous to the outbreak of war, Canada's mineral

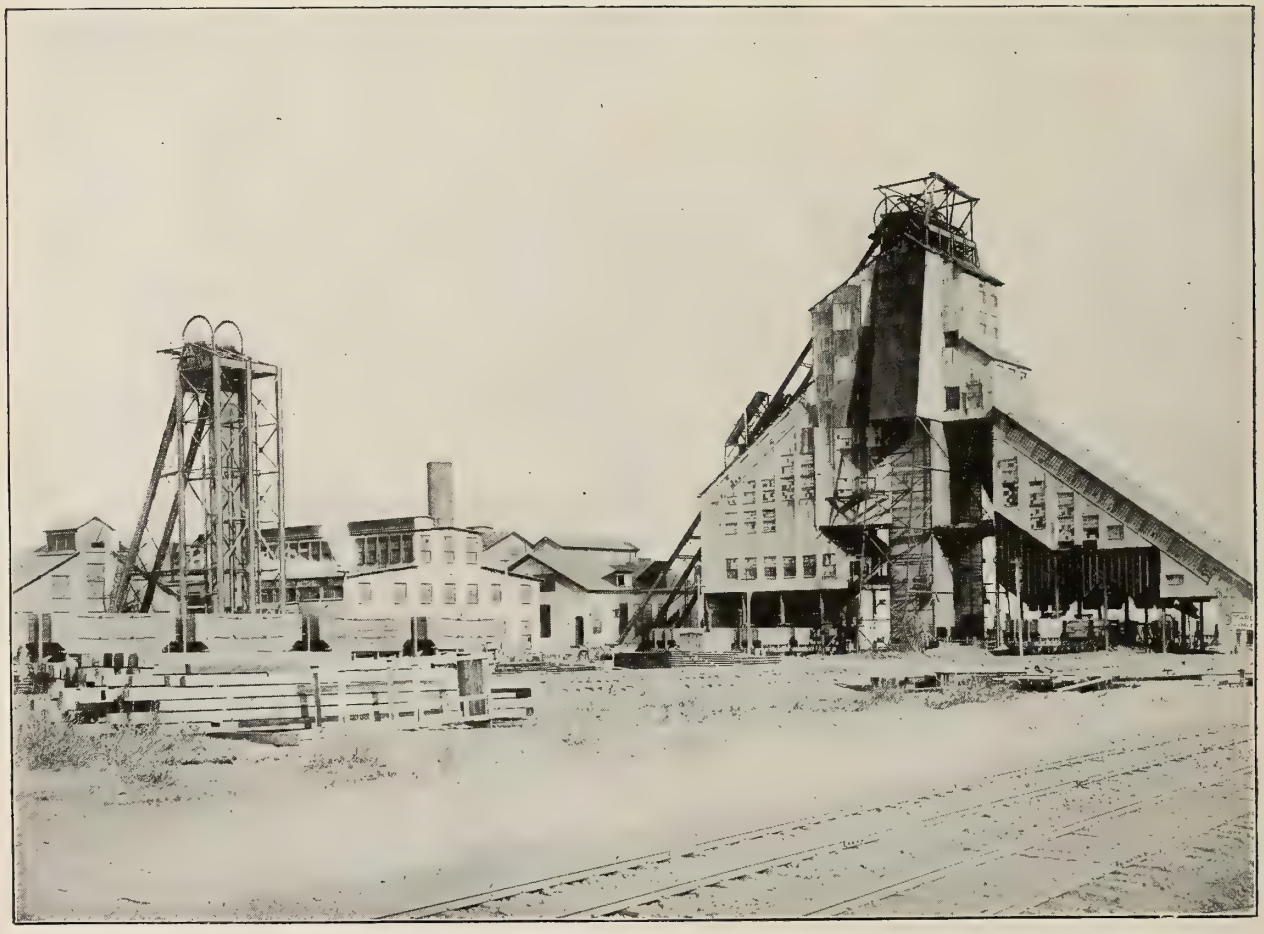
production was valued at $145,634,812, and for the year just closed the estimated value of mineral products is placed at $220,000,000.

The mineral industry of this country is oftentimes unfairly compared with agriculture under the erroneous impression that the latter must necessarily always take first place in national importance. Great Britain did not attain her great wealth as a result of agriculture but rather by manufacturing and development of her mineral resources. The four leading States in the American Union in point of population and wealth, are New York, Pennsylvania, Illinois, and Ohio, and these four States attained their premier position as a result of mining rather than agriculture. Some years ago the Ontario Government offered every inducement to effect settlement of the clay belt in Northern Ontario with very indifferent results until the discovery at Cobalt of silver, and subsequently of gold at Porcupine attracted in a very short time the population that had failed to respond to the agricultural possibilities. Industrial progress in any country has always been of slow growth without mineral production, and lacking industrial progress there can be no great increase in population, which is this country's necessity to-day. The greatest nations in the world are also the greatest producers of coal and manufacturers of iron and steel. Canada does possess partially developed and latent resources of these and many other important minerals, which taken advantage of with energy and foresight will undoubtedly place her in the front rank of industrial activity.

MINING STATISTICS, 1916 1917, 1918

	1918.	1917.	1916.
Total Mining Production of Canada (value)	220,000,000	189,646,821	177,201,534
Pig Iron Production (short tons)	1,182,000	1,170,480	1,169,257
Steel Ingots and Castings (short tons)	1,910,000	1,745,734	1,428,249
Copper Production (pounds)	117,000,000	109,227,332	117,150,028
Zinc Production (pounds)	36,000,000	29,668,764	23,364,760
Gold Production (value)	14,750,000	15,272,992	19,234,976
Silver Production (ounces)	20,800,000	22,221,276	25,459,741
Nickel Production (pounds)	91,500,000	82,330,280	82,958,564
Lead Production (pounds)	.....	32,576,281	41,497,615
Coal Production (short tons)	15,180,000	14,046,759	14,483,395

A Canadian Colliery



Coal is one of Canada's most important minerals and it is estimated that there is a reserve of over a million million tons. The production comes chiefly from the provinces of Nova Scotia, Alberta and British Columbia. The output of the Nova Scotia mines dropped very considerably during the war, that of 1918 being about 29 per cent. less than that of 1913. The decrease was due in great part to the enlistment of expert miners. The return of the men in 1919 may result in increased activities, particularly during the latter half of the year. The year 1918 saw a very important increase in the production of coal in Alberta, so much so that Nova Scotia will for the first time probably surrender to this province the leading place.

Position of Canada's Steel and Iron Industry

Canadian Mills, just at the Time they are Recovering from a Tremendous War Effort, are Being Met with the Keenest Kind of Competition from the Great and Highly Organized Interests of the United States—Quiet Period likely for First Four or Five Months of the Year

By A. R. KENNEDY

THE steel industry has a dividing line now that it never had before. It is quite proper to speak of trade before the war, and of trade after the war. Between the two there is a vast difference. The war trade, once the first experiments were made, was a matter of quantity production. There were no selling problems—in fact, in many cases the sales forces were simply official explainers for deliveries that were falling behind the promised schedules. Now in the "after-the-war" trade period, it is quite a dieffrent proposition, and the competitive market has been restored with an alacrity that has proved surprising even to those who have followed the market conditions very closely.

Before the end of 1914 it had been demonstrated beyond any doubt that basic steel, the kind that is turned out almost exclusively in Canada, was highly suitable for the making of shells, and from them on the allied nations turned to this country for assistance, and they received it from the steel industry in a way that reads more like a modern business romance than anything else.



Scene in a Canadian Machine Shop

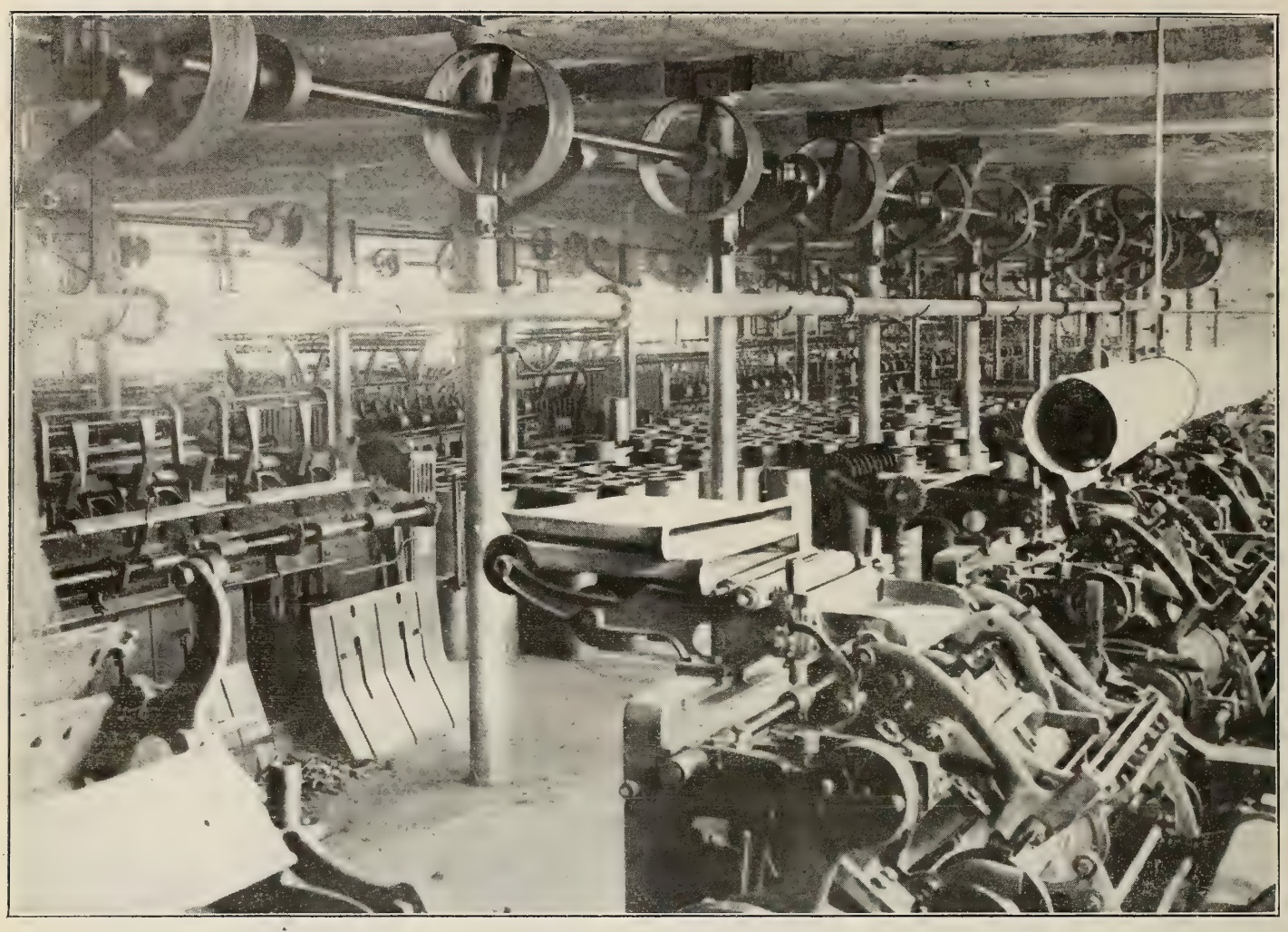
Canadian shell shops have had a splendid opportunity in many cases to compare the Canadian forgings with those that have been shipped in here from other points for machining. The verdict in nearly every case has been that operations have been more regular, the life of the cutting tools longer and the rapidity of production greater on the Canadian forging, due to the uniformity of the material that the shell shop had to work on. This, it is claimed, is due to the uniformity that was maintained all through the work, and especially in the heat treating processes.

It is not the purpose of this article to recount the output of shell shops. It is sufficient to point out that in December, 1914, there were two firms shipping munitions; January, 1915, eight firms; April, 1915, fourteen; and in June, of the same year, 36 firms, with an average weekly production of 77,000 shells. Three years later, in June, 1918, the average weekly production of shells in Canada was 386,000. In other words, the production of war materials in Canada called for the use of 1,800,000 tons of steel, and of this amount over seventy-five per cent. was made in Canada.

The steel industry in the Dominion was as much a part of the war machine as could possibly be desired. The capacity of the mills was mobilized and took its orders from the militia just as truly as any private in the ranks. It rolled rails, or plate, or forged shells or ship forgings at the say-so of the Government. It told its peace-time buyers that they would have to stand aside and wait until Canadian steel had done its bit to the limit in the driving back of the German menace, and in this way it lost touch with a great deal of its commercial business, much of it that was offering not even being entered on the books at the mills to stand its chance.

Canada has not a very large steel-rolling population in its labor market. But it has been shown that Canadians are very ready to learn the steel rolling business. One Ontario firm had plans out for a plate mill to take care of its open-hearth capacity when the shell steel call should cease. It had been arranged to bring in a crew from the United States to open and operate the mill. In the meantime United States entered the war, and workers in the steel mills could either stay where they were or enter the army. The result was that the Canadian steel mill manned its plant with green Canadians. Inside of a remarkably short time that plant was turning out plate in record quantities. And in this connection it may not be amiss to point out that the development of the steel industry in Canada means the opening up of a good source of employment in an industry that beckons to the young man with the necessary physical and mental ability to come on and earn more. And there are many Canadians who are reaching farther through the cashier's wicket in the steel mills than they have ever done before, or than they could possibly do in any other line of business.

Steel mills made money during the war. Big earnings meant possibilities of greater dividends. In many cases this led to a rather dangerous situation. Speculators who bought common stock in the steel group were quick to clamor for immediate returns on their money. They claimed that the money was being made now, and the stockholders of present record should be the one to participate in the large earnings.



—Official photograph taken on the British Western Front in France.

The Trail of the Hun

Valuable machinery in Lille linen mills completely destroyed by the Germans

It would have been a very easy matter in many instances to have given way to this and handed out large bonuses or increased dividend rates. Fortunately for the future of the business in Canada this was not done. Directors were shrewd enough to look past and beyond the days of quantity production and of non-competitive selling. They realized that if the steel business in Canada was to take its place and maintain its stride after the war it would be necessary to have the plants brought to a remarkable degree of physical perfection. It was realized that it would be necessary to make a greater variety of material than ever before. And so it was that the steel industry of the Dominion turned a deaf ear to those who saw in a period of large earnings nothing but an opportunity to pull down dividends, regardless of what might happen to their holdings when the days of world-wide competition would have to be met, and met on the basis of price and quality.

Plants in Better Shape

In the eastern section the plant of the Scotia Steel and Coal was the only one rolling plate at the outbreak of the war This company has added another blast furnace, although it has not been used yet. It will allow relining of the existing stack any time this is necessary, and provides furnace capacity to take care of any expansion that may be necessary with the backing of the immense ore deposits of this concern. Labor has not been as efficient as was hoped for in the east and production has suffered accordingly. There have been strikes at intervals over the most petty grievances, and the raising of wages does not appear to have proved a panacea for labor troubles in the east. To what extent the Scotia people intend to develop their holdings is not exactly known, but it would seem possible that with the improvements of shipping, the company might come into the market as shippers of iron ore on a fairly large scale in adition to their other well-defined lines.

A Big Step Forward

The arrangement between the Dominion Government and the Dominion Steel Corporation for the erection of a plate mill at Sydney marks a big step in the path to national self-reliance and is a logical addition to Canada's steel industry. It is perhaps an evidence more of government initiative than of corporate enterprise. The Dominion Steel Corporation has also made large strides in the matter of coking capacity, installing two batteries of Kopper's by-product coke ovens, which should in time give greater production and effect considerable saving in labor. In common with Scotia, the Dominion enterprises have been adversely affected by labor disturbances, and production figures have suffered accordingly.

The Steel Company of Canada, at Hamilton, has had a remarkable period of activity, and capacity operation has been the rule. The most recent improvement at the property has been the installation of new by-product coking ovens, which are now in operation. Deals were also put through whereby property was secured which would make more certain

a continuous supply of raw materials for the blast furnaces.

At Sault Ste. Marie the Algoma Steel Corporation has completed its fourth blast furnace during the year, and has also added more by-product coke ovens. Docking facilities have also been greatly improved. The steel ingot production at the Sault works has been well maintained, and high records were made for several months just prior to the close of the war. Commercial business to a considerable extent was handled here as well as large orders for war material.

Electric Process

Canada has not lagged behind in the adoption of the production of steel by the electric process. At the beginning of 1918 there were 233 electric furnaces in the United States and 36 in Canada, while at the present time there are 330 in the republic and 43 in this country. During the war period the electric furnace had a splendid field in which to operate by reason of the immense amount of turnings that were available from the shell shops. Even in after-war trade there is a good field open for this process in the turning out of alloy steels for automobile work and kindred lines. It can compete with crucible steel and in point of quality is probably a better article in many cases than the product of the open-hearth furnace, but when it comes to quantity production the tables turn in favor of the open-hearth process. It is well worth recording that at the plant of British Forgings, Toronto, there is an installation of ten six-ton electric furnaces, with a possible capacity of 400 tons per day. This is the largest electric furnace steel plant in the world. To operate to capacity called for 20,000 horse power. It was impossible to secure this amount of current, and so the real capacity of the plant was never reached. Only a few days ago the Volta Mfg. Co., of Welland, makers of electric furnaces, shipped to an Australian customer a complete six-ton furnace outfit. The electric process has also been employed during the year for the making of pig iron out of scrap steel.

Price control did not come quickly in Canada. As a matter of fact ship plate was the one article, more than anything else, that came under real control, and it was trading at rather high figures, the great bulk of it being imported. After many price fluctuations, during which warehouses in some cases secured as high as 15 cents a pound, the price recognized as the government maximum was ten cents, or $200 per ton.

Right at the present time the steel interests in Canada need business. The much talked of government programme in regard to railroad construction should help a great deal if it materializes rapidly enough. The competitive selling era is here in no uncertain way, and the big rolling mills of the United States, with their order books not by any means full, are combing Canada for business, with the unwritten, but well understood instructions of "Get the business." It means that the Canadian mills, just at the time when they are recovering from a tremendous war effort, are met at once with the keenest kind of competition from the great and highly organized interests of the United States.

Can Canada cut prices to meet the cuts recently made at U.S. points? This is a big question and one that involves too much to be dealt with here. Raw materials are contracted for in advance, and at prices that have not declined. Yards are well stocked in many cases with ore and scrap that came in at war prices. Labor costs have not decreased. It is a dangerous operation to force the latter down while the country is still in the grip of an era of high prices. The result of all this expectation of lower prices is that the list of those who will eventually buy steel, but who prefer to wait for lower prices, is growing. Building that calls for quantities of steel, and which will be used to compete with industries housed in buildings that were erected at the low level of pre-war prices, is being held back in the hope of effecting a saving. If the price can be whittled ten per cent. in six months or fifteen per cent. in a year, the wait is going to be prolonged. This situation, while it may not bring immediate or slashing cuts in the price lists, has a strong tendency to introduce a far greater degree of elasticity in the selling figures, and every concession in this direction tends to bring the buyer and the seller nearer the common plane where they can meet and do business on satisfactory terms.

Quiet Period Expected

The steel trade looks for a quiet period for the first four or five months of the year. It is perhaps good policy to go carefully and be sure of the ground. There is nothing in the future, in the opinion of men well versed in the trade situation, to make ground for pessimism. Rather is there every hope for a gradual but substantial increase in the volume of business. With proper encouragement from Ottawa there is no good reason why steel in Canada should not become, in its various branches, a great national industry and source of remunerative employment to thousands of people.

The Canadian Stove Manufacturing Industry

By F. M. TOBIN

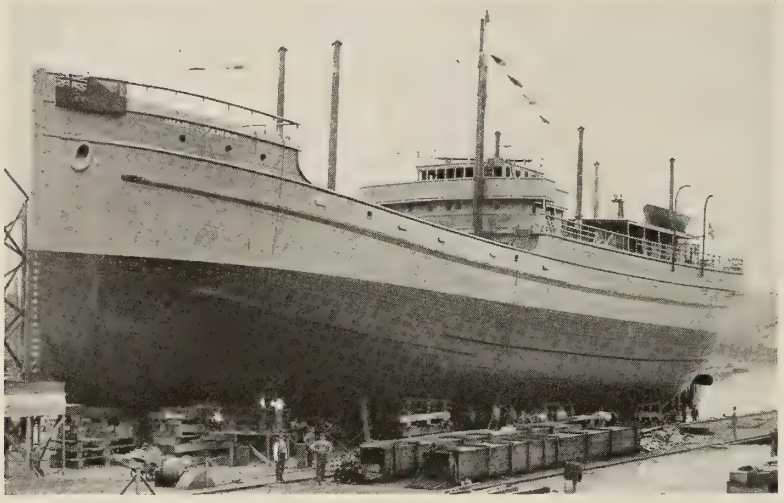
Secretary, Canadian Stove Founders, Toronto

THE stove manufacturer of Canada has added to the general uncertainty of conditions brought about by the termination of the war, the unfortunate fact that he now enters the poorest period of the year for stove business. The demand is never paricularly brisk in January and February, and is not improved this year by the general uncertainty.

The manufacturer, however, has at least escaped being accused of profiting by any war conditions. The beginning of 1915 opened with sharp rises in the price of material and cost of labor. Some contracts for material had been placed before the whole advance, but few, if any, stocks were on hand at the lowest mark of the pre-war market. There was a disposition on the part of the manufactures all through the war-period to consider average costs of material, rather than accept the actual market conditions for a basis of cost, and for this reason, at no time during the past three years have stove prices been as high as actual cost warranted. The prices of Canadian made stoves are to-day from 5 per cent. to 15 per cent. less than similar aticles at the factory in the United States, where heretofore, owing to larger production, a slightly lower price has prevailed.

It is well known that there are very small stocks of any finished goods either in the hands of the manufacturer, jobber, or dealer to-day. Some of the manufacturers have contracts for materials and some fair stock of materials are on hand. These were obtained at prices ruling at about the highest point of the market. There is every prospect that there will be an increase in some labor costs. It is hoped, however, that there will be a good demand for stoves and ranges during the last half of the year. It is reasoned that there will be a great many new homes required for our returned men. This, added to the usual demand, should improve the sales of this class of goods beyond any condition that has prevailed during the last three years, at least.

Canada's Progress in Building of Ships



One of the Wooden Steamships Built on the Pacific Coast

Since the Outbreak of War, between Eight and Nine Hundred Vessels of One Kind and Another Have Been Built by the Dominion for the Various Allied Governments, to Say Nothing of the Number She has Built for Herself—There are Thirteen Yards Building Steel Vessels for the Government's Merchant Marine

By W. G. CATES

THE Great War put Canadian shipbuilding on its feet. In the building of wooden vessels it revived an industry which, from being in an exceedingly flourishing condition forty years ago, had fallen to a low ebb. As for steel shipbuilding, the war, within less than two years, made possible a development which, in the ordinary course of events, would hardly have been reached within a shorter period than several decades. Even as late as 1916 some of the most reliable authorities on matters pertaining to the Canadian marine were not very hopeful of the immediate development on a large scale of steel shipbuilding in Canada. To them the higher cost of production in Canadian yards, as compared with that abroad, the lack of experience on the part of Canadian engineers in the building of marine engines, and the dependence of Canadian shipbuilders on other countries for supplies such as plates, were, for the time being, obstacles seemingly insuperable.

The great war, with its imperative demands for increased shipping, accentuated by the depredations of German submarines, gave Canadian shipbuilders their golden opportunity and they seized it in a manner that has commaanded not only the thanks of Allied Governments, but, which within a short time has rounded out Canadian industry in a manner that seemed quite unrealizable two years ago. Since the outbreak of war Canada has built between 800 and 900 vessels of one kind and another for the various Allied Governments, to say nothing of the number she has built for herself. She has built for the Imperial Government, for France, Italy, Russia, Belgium, and Norway, and is still building for some of these countries. To-day Canada has in steel shipbuilding an almost new and exceedingly valuable industry, employing possibly 25,000 men annually at high wages, and established, it would seem, on a permanent basis.

Four years ago Canada had really only one thoroughly modern steel shipbuilding yard; to-day she has 13 yards engaged in turning out steel vessels for the Dominion Government's merchant marine. Several of these yards are capable of building vessels of 10,500 tons. During 1918 there were launched in Canada approximately 450,000 dead weight tons of shipping.

In 1915 the demand for new tonnage for the transportation of troops and war supplies manifested itself in increased activity in shipbuilding yards, especially on the Atlantic and Pacific coasts. Then, and for nearly two years afterwards, the demand was chiefly for wooden vessels. In addition to this, orders were received for large numbers of motor submarine chasers. Orders were also received for submarines and for quite a number of steel fighters, armed drifters and trawlers.

The number of vessels built for other countries since the outbreak of war is undoubtedly much larger than the average Canadian has thought. This is because, through the secrecy maintained respecting such work while the war raged, he received very little definite information on the subject. Comparatively few people know that Canada was building submarines for other countries, and yet the fact is that she built about 30. Eleven of these were turned out at Vancouver, and yet while the work went on so well was the secret guarded that few, indeed, knew about it save those engaged in the operations. The assistance rendered by Canada in providing tonnage to the States demonstrates what Canadian industry can do when it gets a genuine opportunity.

The following particulars give some idea of what vessels Canada built for other countries:

Submarines			
Great Britain.	12		
Russia	11		
Italy	6		
Total	29		29
Armed Trawlers			
Great Britain.	60		
France	6		
Total	60		66
Armed Drifters			
Great Britain.	100		
Total	100		100
Coastal Motor Boats			
Great Britain.	550		
France	36		
Total	586		586
Steel Lighters			
Great Britain.	24		24
Total	24	Grand Total	805

In addition a number of the 50 wooden vessels ordered last fall by the French Government have already been built, and others also for Belgium and Norway. Sundry others would still further increase the total, so that 850 to date seems quite within the mark. Obviously this is quite a record for a country, which, in 1914, built all told only about 50,000 tons of shipping.

As can readily be imagined, the orders that came in during the first year of the war created much new business for Canadian yards; but it was not until 1917, when the Imperial Munitions Board began to place orders, first for wooden, and then for steel vessels, that the industry started to expand in the manner that has been characteristic of it during the last 14 months. All told the Imperial Munitions Board awarded contracts for 90 vessels, 46 of which were wooden and 44 steel. These represent a dead weight tonnage of 356,343 tons, valued at $69,675,009. These orders distributed among yards on the Atlantic coast, along the St. Lawrence, the Great Lakes and the Pacific coast imparted to the shipbuilding an impetus such as few had ever hoped to see. Not only did they mean that all existing yards were worked to their full capacity, but they brought into existence many new ones and finally had the effect of making the industry one of the great features of Canada's remarkable industrial effort during the war. During 1918 the yards have been busy on these orders, 68 vessels—23 steel and 45 wooden—with a dead weight tonnage of 253,000 having been launched for the Imperial Munitions Board since the beginning of the year. The value of this tonnage is placed at a little over $37,000,000. Another considerable order was received during last fall from the French Government, for 50 wooden vessels, valued at $21,000,000. These are being built in different parts of the Dominion.



A Notable War-Time Achievement

Dry dock at Montreal containing a fleet of 30 armed motor boats

All portions of Canada, except of course the Prairie provinces, which cannot build vessels, have directly benefitted greatly from this development. During the last 15 months British Columbia has probably profitted most, the Imperial Munitions Board's orders, followed by those for the Canadian Mercantile Marine, having meant millions in money both for material and wages. During 1918 about 125,000 tons of shipping was turned out in that province, and it has been estimated that this meant the payment of $10,000,000 in wages. At the present time 12 steel vessels of 84,000 tons dead weight are being built for the Dominion Government. Two of these, 8,100 tons each, are being turned out at Prince Rupert. In addition many wooden vessels are being built for the French Government, 10 for Belgium, and another 10 for Norway. A contract for several steel vessels has also been received from Norway. This activity has brought back to British Columbia the prosperous conditions of eight or nine years ago.

The shipyards on the Great Lakes are to-day building steel vessels at a rate that would have been thought out of the question a few years ago. They have received contracts for 11 steel vessels for the Dominion Government, this tonnage representing practically 45,000 dead weight. The same story is repeated on down to the sea, where some of the biggest vessels—the 10,500 class—are being built, two of them, at Halifax.

The launching of the Dominion Government's steel shipbuilding programme for the creating of a Canadian mercantile marine is a development of the utmost importance to the native shipbuilding industry. There was danger least, notwithstanding the strong impetus imparted to the industry by the orders secured through the Imperial Munitions Board and other business growing out of the war, that the advantage thus gained might be largely lost through lack of other large orders to keep the yards busy. The Government's programme has, however, obviated such a danger. It has enabled the steel shipbuilding yards not only to continue their operations in a larger scale, but has led to a remarkable expansion of existing yards, and has brought other large ones into existence. To date contracts have been let for the building of 45 steel vessels, representing 263,950 dead weight tonnage, valued at $52,791,450. As first announced, the Government's policy contemplated the building of about 200,000 tons a year, but experience has shown that this is much more than the yards can handle. Already two large vessels have been launched and are now on the high seas, thus forming the nucleus of the Canadian Mercantile Marine. They will be operated under the direction of the Board of the Canadian National Railways.

What this departure means to Canada it is impossible to estimate. For one thing it would seem to assure the permanency of the steel shipbuilding industry in Canada, since the contracts already awarded are but the first of many that are expected to follow. Indeed, it may be considered as certain that the Government will order new vessels for the Mercantile Marine as fast as the growth of the export trade warrants it. That big things are contemplated may be seen in the fact that 250,000 tons of steel plates have been contracted for to be taken from the new mill erected by the



An Interesting War-Time Operation

While the demand for ocean shipping was at its height, several vessels plying on the Upper Lakes were cut in two, as above, in order to permit of their being taken through the locks of the Welland and St. Lawrence Canals, and on arrival at Montreal were joined up again for service on the Atlantic

Dominion Steel Corporation as a result of special arrangements with the Dominion Government. This is sufficient for between 600,000 and 700,000 tons of shipping. The creation of the Mercantile Marine also gives assurance that Canadian goods exported will for the most part, be carried in Canadian bottoms.

From this it will be seen that for the next year or two the Canadian shipbuilding industry may expect good times. The Dominion Government's orders should alone keep it busy during this period, and on until the new tonnage now being built in all parts of the world replaces fully that destroyed during the war and satisfies the new demand created by the post-war expansion of commerce. After that the future of the industry will depend largely on the cost of building vessels in Canada as compared with that in the leading shipbuilding countries of the world. Certain it is that the industry will be in a much better position than it was in the days before the great war. For one thing, it has demonstrated that under under anything like equal conditions it can hold its own with the best of other countries. This has imparted confidence that will do much to ensure success. Furthermore, in the matter of materials entering into the building of steel vessels, Canada will, from now on, be much more self-contained than ever before. All this will contribute to the placing of the industry on a permanent basis, and the future may be awaited in confidence.

Canada's Trade With Newfoundland

Transportation Difficulties Hamper the Extension of this Desirable Business

THE following statement of the exports from Canada and the United States to Newfoundland will be of special interest to Canadian manufacturers, particularly at the present time, when they are looking for export trade:

FROM CANADA.

1912-13	1913-14	1914-15	1915-16	1916-17
$5,215,500	$4,860,000	$4,510,000	$5,870,456	$6,871,000

FROM UNITED STATES.

1912-13	1913-14	1914-15	1915-16	1916-17
$5,574,000	$3,800,000	$4,900,000	$7,100,000	$9,900,000

It will be observed that in the year 1912-13 the exports from Canada and the United States were substantially the same. For the year 1913-14 they were slightly higher from Canada. In 1914-15 there was a difference of $390,000 in favor of the United States. In 1915-16 the difference in favor of the United States was $2,229,544, and in 1916-17 the difference was $3,029,000.

A very large increase is shown for the past two fiscal years in favor of the United States, notwithstanding the fact that the direct service between United States and Newfoundland was discontinued. Information has just been received that during the past summer a new line of steamers has started to run between New York and St. John's, Newfoundland. They commenced with two steamers and they are now putting on two or three more.

Nearly all traffic for the past two years from Canada to Newfoundland has been handled via North Sydney and the Reid Newfoundland Company. The facilities, however, at North Sydney are entirely inadequate, with the result that embargoes have been in force almost continuously. Representations have been made to the Department of Railways and Canals and to the management of the Canadian Government Railways, and assurance has been received that some improvements will be made, but the improvements which have been suggested are only of a temporary character, because, as it has been stated, of the difficulty of obtaining labor and material. Complaints made to the Canadian Government Railways have been answered with the statement that the blame was entirely with the Reid Newfoundland Company, although it has been admitted that the Canadian Government Railway's facilities at North Sydney were not what they should be.

There has been friction for some time past between the officials of the Canadian Government Railways and the Reid Newfoundland Company, as a result of which the shipping public have suffered. The facts are to be placed before the Minister of Railways and Canals as soon as it can be arranged for a proper representative of the Reid Newfoundland Company to be present.

The Lumber Industry in After-War Period

This Vast Industry Should Enjoy a Period of Development and Prosperity such as has not been Witnessed During the Past Decade—Great Quantities of Lumber Required to Rebuild France and Belgium—Interesting Statistics of the Industry

By W. E. BIGWOOD

Graves, Bigwood & Co., Byng Inlet, Ont.

President, Canadian Lumbermen's Association, 1916-1917

THERE is an old adage that it makes a world of difference whether you are on the outside looking in or on the inside looking out. In other words much depends on the viewpoint. To the superficial observer there appears to be no barrier in the way of lumber decreasing in price in the near future. One hears that labor is plentiful, wages bound to come down, transportation better and the general hampering conditions surrounding our industry during the past four years of war practically at an end.

It may be asked what reasons exist, therefore, in presuming that building materials will not be cheaper owing to the expected lessened cost of production, and in reply it may be stated that for many years there have been numerous misleading ideas prevailing in regard to the part that the lumberman plays in the industrial world. The public has been prone to regard his operations as one-third expense and two-thirds profit; that as a class he is a millionaire and has systematically been obtaining timber concessions for a mere song and, by reason of his large activities, has been able to reap huge benefits—a pleasing picture but one far short of realization in the hard, stern conduct of the business.



Ready for the Spring Drive

Showing how logs are piled on the banks of the watercourses

It may be pointed out that, since the outbreak of the European war, the lumber manufacturer has had to face a wage increase of over one hundred per cent. while the class of help obtainable has been most inefficient, so that production has steadily diminished. The cost of all supplies, which the woods operator buys in large quantities, has advanced from seventy-five to one hundred and fifty per cent. and this season shows an increase over last winter. Driving conditions last spring were very difficult on account of low water and labor was scarce, restless and exacting during the entire logging and sawing periods. Then in the fall, influenza broke out in the camps and for several weeks operations were stalled and there was a general demoralization of conditions. Cutting in the bush generally begins in August and continues until the first of the year. During that time roads are built for getting out the logs and the skidding of the timber is proceeded with. The release of men from the munition plants and other avenues of employment came too late to alter the general situation materially.

During 1918, there was an increase in freight rates of twenty-five per cent. plus one cent per hundred and in the spring there was an almost complete tie-up of shipments due to the scarcity of cars, embargoes and other regulations. In September last there was also considerable interruption to business by reason of the United States War Board making it necessary to secure special permits on all lumber consignments of a commercial character. The result was that until the signing of the armistice and the removal of this provision the trade of Canadian lumbermen with customers across the border fell off to a large degree. Then the rigid regulations which were imposed for some months on all construction work in the United States aided materially in curtailing the demand for lumber. On the whole the past year was a trying one for the Canadian lumberman, owing to the reasons already outlined, and the cut was from twenty-five to thirty per cent. less than the previous twelve months, and from present indications this will be still further reduced during the present season. It will cost loggers from fifteen to twenty per cent. more to get cut timber than it did in the winter of 1917-18. Generally speaking, stocks in mill yards are lower than they have been for some years. With a shortened supply and an anticipated greater demand, both at home and abroad, I cannot see how any reduction in price can take effect. There will apparently be no decrease in production expense for many months and the situation at the present time, particularly with respect to the attitude of labor, is critical. We must, however, face the future with courage and patience and in a broad and liberal spirit. The problems of readjustment are many and call for the keenest judgment and the exercise of our best consideration and courage.

The lumbering industry, in view of the many handicaps with which it has been surrounded during the past three years, has been adopting a conservative policy. In regard to the number of mills operating in Ontario, Quebec and the Maritime provinces, I would estimate that they were about the same during 1918 as in the year preceding but, as I have pointed out, the sawing season was shorter, while the obstacles in the way of help, driving and transportation considerably reduced the output. The same conditions obtaining in Canada have been prevalent in the United States but to a less



The Picturesque in Industry

One of the many logging camps which dot the forests of the north

degree. Canada was over four years in the war while our neighbors to the south did not come in until the spring of 1917. Notwithstanding this the cut in the United States was ten per cent. less in 1917 than it was in 1916.

Readjustment Will Take Time

From an industrial, economic and financial point of view it is always interesting to survey the future and just how long the period of readjustment will prevail and matters of trade and commerce take to revert to a permanent peace footing, it is impossible to foretell. In normal times about eighty per cent. of the products of the forest go into building operations, interior trim, fittings, etc. During the war this proportion was largely reversed and construction work in domestic and ordinary manufacturing lines consumed but little of the usual output. Our hard and soft woods went into cantonments and camps, aeroplanes and propellers, army trucks and transports, rifle stocks and artillery wheels, shell boxes, cots, saddle trees, and shipbuilding. It will naturally take some time to divert the use of lumber to the channels in which it found outlet previous to the war.

Owing to the higher cost of production, depleted stocks and the increased demand from the United States for war purposes, the price of all wood products during the past year was firm and an advance took place in the spring, due to these causes. So far as the future is concerned, I cannot, for the reasons already presented see how values will drop Large manufacturers and leading wholesalers are not unloading as they are confident that all lumber on hand to-day is worth every dollar of present quotations and could not be replaced at its original cost. In my opinion there will be greatly increased requisitions for lumber. Trade boards, purchasing commissions, and other public bodies are gauging the situation and investigating the sources of available supply of all kinds of wood products. The day of speculation and "taking a chance" in the lumber business is over and all negotiations will be carried out on a sane, solid basis with due regard to supply and demand. The foreign outlook is hopeful and to what extent it will develop depends, in no small degree, on ocean tonnage.

In world affairs Canada enjoys a greater national status to-day than ever owing to the part she has played in the war. The eyes of the Mother Country are focussed on the Dominion and there is a deep sense of appreciation of what we have done in the struggle for liberty and justice. Our white pine, spruce, hemlock and Douglas fir can be used to splendid advantage in the rebuilding of France and Belgium and in the active housing campaign which will be inaugurated in Great Britain. At home, it is hoped, there will be factory extensions and the erection of thousands of new dwellings. There should as the pendulum swings in the direction of normal prosperity be increasing activity and demand in the varied lines of manufactured products in which wood plays an important part. It may require some time to re-establish the old order of affairs and realign operation and production but Canadian resource, intelligence and enterprise will prove equal to the task.

What is specially required at the present time to stimulate matters in the export trade and move cut lumber to the different world markets can be summed up under the heading of adequate ocean tonnage and the elimination of all restrictions, particularly those that prevail in Great Britain preventing free trade as it existed before the war. The newly appointed Canadian Mission in Great Britain and the Federal and Provincial authorities at Ottawa are at work getting in touch with available sources of supply and demand and the Canadian Lumbermen's Association is co-operating with them to the fullest extent. By prompt action and united aggressive effort, Canada can share in the great overseas demand to an extent that will place the lumber business in the Dominion to the very forefront in the readjustment propaganda. Canada has the timber, the facilities and the spirit to undertake large projects and carry out anything started to successful completion.

Statistics of the Industry

There are nearly 3,000 operating timber and pulp wood concerns in Canada with a total output in 1917 of 4,142,711,000 feet. During the same year 55,000 men were employed in logging and milling operations. We have between 500 and 800 billion feet board measure, of merchantable saw timber, covering an area of 250,000,000 acres. There was invested in lands buildings, plants, stocks and working capital in the lumber industry in 1917, no less than $150,000,000. Our total cut of spruce for the same year was 1,466,558,000 feet, while white pine came next with 791,609,000, Douglas fir, 706,996,000,

hemlock 322,722,000, with lesser quantities of cedar, red pine, balsam, fir and other specialties of hard and soft woods.

In regard to the conservation of our wooded wealth encouraging progress has been made. There is much yet to accomplish but we are proceeding in the right direction, and now that the war with all its disturbing issues is over, we may expect that further consideration and advancement will be shown in forestry work. Forestry Protective Associations have been formed and the pioneer in this line is the St. Maurice Association operating in the province of Quebec. As an instance of what a co-operative organization of this character can do, it may be pointed out that, during the past season, there were only 93 fires in the territory patrolled by this body and the flames were confined to 346 acres of merchantable timber. Supervision of the extensive area cost the limit holders about one-third of a cent an acre and the expense of putting out the fires was less than $1,000. In New Brunswick there went into effect a new forest system with a provincial forester in charge. Representative of the progressive interests of the province, a Forestry Advisory Commission was appointed while provisions relative to timber protection were based upon advanced legislation. During the last ten years Ontario has been devoting special attention to fire ranging and reforestation and splendid results have been obtained. These will be materially augmented as the system and service are developed and improved from year to year. The use of motor patrols, telephone and wireless telegraphy equipment, and now the hydro-aeroplane, is rapidly coming to the front. Other valuable aids in safeguarding our great natural assets are being tried out in the various provinces and as soon as their worth and efficiency have been demonstrated, they will be incorporated in general protective plans

While it is too soon after the war to present accurately all the facts concerning the present situation with respect to the lumber business in Canada, I believe sufficient data has been marshalled to show that this vast industry should enjoy a period of development and prosperity such as has not been witnessed during the past decade. It has been estimated that it will require 25,000,000,000 feet of lumber to rebuild France and Belgium alone, not taking into consideration the requirements of Great Britain and upon the shoulders of Canada and the United States will reset the responsibility, and also the opportunity, of furnishing the major portion of the constructional material. The outlook appears bright and a spirit of confidence prevails. In the days that are to come, with all their attendant problems, the lumbermen of Canada can be relied upon to play their part as faithfully, courageously and broad-mindedly as they did during the trying period of the war from which we are now so happily emerging.

An Industrial Fair

For the Third Time Dutch Manufacturers Will Exhibit Goods at Utrecht

Holland will hold its third industrial fair at Utrecht from February 24 to March 8. The first industrial fair field in 1917 was the initial attempt on the part of Dutch manufacturers to get into closer contact with the consumer at home and abroad. Almost 700 national industries exhibited their goods, attaining in twelve days a total turnover of 10,000,000 guilders. The second fair in 1918 had 1,062 exhibitors and the turnover was trebled. In both cases, however, the war prevented a large attendance of buyers from foreign countries. With their obstacle removed, the 1919 fair promises to be a wonderful success. None but goods of Dutch origin are admitted to the fair.



Scene in a Canadian Furniture Factory

Where the lumber cut in our forests is made into various useful pieces

The Furniture Manufacturing Industry

Conditions Have Steadily Improved Since 1915—The Trade Outlook for 1919 is Very Encouraging—Manufacturers Take Steps to Introduce a Universal System of Cost Accounting in the Ontario Furniture Factories

By WILLIAM CAWKELL
Secretary, Furniture Manufacturers Association



Planing Department in a Canadian Furniture Factory

THE year 1915 was a disastrous one for the manufacturers of furniture. While the capital invested had increased from $13,746,262.00 in 1910 to $17,984,346.00 in 1915, the value of the output had decreased from $12,369,366.00 in 1910, to $9,676,577.00 in 1915. The government records show that thirty-five concerns went out of business, and the total money lost by the firms remaining in business was very large.

In an effort to seek remedial measures, the Ontario manufacturers determined to organize much more thoroughly, obtain the goodwill and thorough co-operation of the Quebec factories and open central offices for the dissemination of information having for its object the furthering of collective efforts for the betterment of the furniture industry as a whole, and educating manufacturers generally in regard to the cost of production. Thanks to the untiring efforts of the Committee, these objects were to a great extent carried out successfully.

The year 1916 showed a big increase in sales over 1915, and amounted to $12,773,081.00, a gain of 32 per cent. Orders for shell bores helped to bring about this result, and the fact of prices being higher was also a factor. But the fact remains that there was a decided improvement, and as a whole, manufacturers made a small profit.

The results of 1917 trading showed an increase of sales, but only about 14 per cent., and this was largely caused by increased prices and the percentage of profit was less, owing to the fact that the prices obtained for furniture had not kept pace with the advanced cost of raw materials and wages.

Complete returns for 1918 are not available, but it is expected that the net results will show some improvement over 1917.

During the past four years manufacturers have not been very seriously handicapped by the difficulty of obtaining raw materials, although there have been various restrictions and the United States requisitioned the total supply of walnut lumber. Prices of all articles entering into the manufacture of furniture were very low in 1914, but they commenced to rise in 1915, and made very marked advances in 1917. These advances were nothing like covered by the enhanced prices of the finished article, and it is largely owing to this lack of foresight that the furniture industry is not in a more prosperous condition to-day. Market conditions have not been followed closely enough and prices have always been advanced because of back shortages, instead of keeping pace with the advance in the prices of raw materials.

The furniture industry, like other industries, has felt the effect of the shortage of labor caused by war conditions. but it has also suffered very severely by reason of the fact that other more prosperous industries have taken away a large

number of its skilled workers, because these industries were in a position to pay a higher rate of wages than the furniture factories could afford to pay. Therefore, furniture factories have been handicapped by a shortage of labor, besides paying higher wages to less efficient help—a serious state of affairs.

During the past four years there has been an increased demand for the medium and higher grades of furniture. The sale of the cheaper grades of furniture has shown a falling off, for two reasons, I think—one being that the wage earner has been getting higher wages, and the other, that the advanced price of the cheaper native lumber has brought the cost of the lower grades of furniture nearer to that of the imported woods, the labor cost being the same on both.

Furniture factories have not been working at anything like their normal capacity, because of shortage of skilled labor, and because a large percentage of the labor obtainable was not efficient.

Outlook for the Future

The outlook for 1919 is very promising. In the first place, there will be an increased demand because of the large number of soldiers who will be returning and who will have to fit up homes; this will create a big demand for furniture, the extent of which will depend on the housing accommodation obtainable. Then there will be an enormous amount of cabinet cases made this year for phonographs, the sales of which have increased enormously.

There is also the Export Trade to be considered. There is going to be a considerable market for Canadian furniture if the manufacturers take energetic steps toward securing it. There is a shortage of practically all materials required for the construction of furniture and prices must necessarily continue to be high.

Labor Question Important

The labor question is one that will require to be very carefully dealt with, and if furniture factories are to attract and retain skilled labor, they will have to pay wages equal to other great industries; therefore, it seems to me that wages to desirable skilled help will require to be advanced. And there are already signs of this. Employers will also require to get into closer touch with their workmen and get them to see that their interest lies in the success of the factory. The workmen must be made to understand that if they are to get high wages, they must put forth their best efforts. If they will make themselves highly efficient and highly producive, then the question of high or low wages is not of much consequence providing the factory is working to its capacity.

In the future efficiency will be a greater factor than ever before, and it is a hopeful sign that the Ontario Furniture Manufacturers have engaged a qualified Cost Expert to put in a standard Cost Accounting system in their plants. The logical outcome of this will be greater efficiency, and I know that there are sufficient people in this industry with the necessary technical skill and administrative ability to bring this about as soon as they get the necessary data which will be forthcoming as soon as their Costing system commences to show results.

Conditions in the Engine and Boiler Industry

By WM. INGLIS
The John Inglis Co., Limited, Toronto

DURING the first period of the war, before the scarcity of ammunition and the submarine menace became acute, general manufacturing business was slack, though prices had not then advanced to any extent. At the earlier stage, the enlistments did not affect manufacturing conditions; but the supply of labor soon became unequal to the demand; and with the advent of the munition industry, labor available for general work began to get scarce. A little later the need for more ships arose, which still further reduced the available labor supply until all orders except those for war purposes had to be refused. Meantime, the situation was further complicated by an increasing scarcity of materials, such as steel plate, boiler tubes and pig iron, until all general work was stopped—a condition to which high prices as well as scarcity of materials contributed.

During the second year of the war an urgent demand for more shipping became apparent, and orders for marine engines and boilers commenced to crowd in, quick deliveries being in demand. Before long, the Government, represented by the Imperial Munitions Board, took control, first of the inspection, and later, of the output of marine machinery; and the industry as a whole became more standardized, and the output of the different plants throughout the country synchronized.

As regards the effect of the war on values, the tendency was towards a general and rapid advance in prices of all machinery, the maximum advance being about 200 per cent. on boiler work and about 150 per cent. on other machinery. As regards additions to productive capacity, several new tools have been installed, but only a limited number of these can be used on general work; and there have been practically no improvements in manufacturing facilities other than what would have been made under normal conditions.

The close of the war finds us with a considerable number of marine engines and boilers in course of construction or on order, which will keep us well employed from six to nine months. Some difficulty has also been experienced in obtaining material. As demobilization progresses the labor situation will improve; material also will tend to come in more freely. The supply of skilled labor will continue to be less than the demand, and there will be no general decrease of skilled mechanics for some time; but common laborers will be obtained in increasing numbers, and wages for such will fall, though not as low as in pre-war times, unless the cost of living also returns to its former level.

Now that the war is practically over, there will be a steadily increasing demand for machinery for home use, as owing to the high prices previously prevailing and the restricted output of such goods during the past three years no repairs or renewals have been made, except such as were absolutely necessary for operation.

The tendency of the industry at present is towards standardization of output, and specialization in certain work. Too much attention has been paid in the past to the eccentricities of the individual purchaser. In future it will be the policy of the manufacturer to promote the use of standard goods of established design.



One of the Immense Pulp and Paper Plants which have been Erected on the Pacific Coast

Pulp and Paper Production at Record Level

Demand for Both Pulp and Paper for Domestic Consumption as well as for Export Trade has Outrun Production—Outlook for the Industry Encouraging in Every Sense — Not Likely to be any Serious Decrease in Demand

By F. J. CAMPBELL

President, Canadian Pulp and Paper Association

NOTWITHSTANDING the fact that there has been practically no expansion of the pulp and paper industry in Canada during the past twelve months, and notwithstanding that the industry has been obliged to contend with Government regluation of the selling price for a considerable part of its output, together with unsettled labor conditions and difficulties in securing adequate shipping facilities for its product, as well as greatly increased freight charges upon its raw materials, the industry as a whole can look back over the year just ended with some satisfaction, in the knowledge that it has kept abreast of the times and has contributed its full quota to Canada's general trade account.

No Great Physical Expansion

Lockwood's "Directory of the Paper and Stationery Trades for 1919," a recognized authority, gives the total number of concerns engaged in the manufacture of pulp and paper in Canada as eighty-seven, the number of individual paper mills as sixty-six, the number of pulp mills whether connected with paper mills or not as ninety-two, the number of groundwood mills as fifty-two, the number of sulphite mills as twenty-eight, the number of soda pulp mills as two, and the number of sulphate mills as ten. This does not differ materially from the list of a year ago. A few of the mills have, by adding new machinery or other improvements, increased slightly their capacity but there has been no general expansion. With the war ended and the probability that new capital for industrial enterprises will soon be available, an increase in the number of pulp and paper establishments is almost sure to follow within a comparatively short period. In fact several important projects looking to an expansion of the industry are already under discussion, and the coming year will probably see one or more of them brought to maturity.

But if there have been no new mills established, those already in existence have enjoyed practically uninterrupted operation throughout the year, except in instances where labor troubles or unavoidable power shortage or epidemic disease may have caused a temporary suspension of activity. The total production, therefore, will compare favorably with that of previous years. The cost of production has been relatively very much higher—raw materials, labor, freight charges and other elements entering into costs having all advanced materially. These higher costs have, of necessity, been reflected in the selling price of the finished product, thereby giving a largely enhanced value to the year's total output, which may reach a total of approximately $110,000,000 to $115,000,000, as compared with about $85,000,000 for the preceding twelve months' period.

Rapid Growth of Exports

As usual, a large part of these products have been marketed abroad. Dominion Government trade returns are available for only the first six months of the current fiscal year; these, however, show a gratifying increase in the value of our pulp and paper exports as compared with preceding years and indicate a steadily increasing demand for these products in other countries. The total value of Canada's exports of pulp and paper for the six months ending September 30, 1918, amounted to $40,636,919, as compared with $31,074,168 during the corresponding period of 1917 and with $20,040,745 for 1916. During the same period there was exported from Canada 980,652 cords of unmanufactured pulpwood, valued at $9,327,901.

The demand for both pulp and paper for domestic consumption as well as for export trade has outrun production throughout the year. This has been due to a number of

causes, chief of which are the diminishing American imports of pulp from Scandinavia and the lessened output of the American mills themselves. Federal Trade Commission reports throughout the year have noted a constant decrease in reserve supplies of paper, both at the mills and in the storehouses of the consumers, a condition which led the American War Industries Board to attempt to undertake the allocation of all shipments of newsprint paper, irrespective of current contracts. The situation also brought about enforced restrictions in the use of paper and other measures intended for the conservation of the available supply.

Market reports show a general upward tendency of prices throughout the year, particularly for sulphite and sulphate pulp and for other products unaffected by Government price regulation. The price of newsprint paper is still the subject of Government control in both the United States and Canada. In the former country the regulation applies to ten mills only, seven of which are Canadian. This control, it is definitely provided, is to cease three months after the ending of the war. The Government price in the States which was originally fixed at $60 a ton, has by successive stages, including a review by four judges of the United States Circuit Court, been increased to $75.05 per ton. This price is still from $5 to $8 a ton lower than paper is being sold for in the open market of the States. In Canada, Government regulation started with a basic price of $50 a ton, which has since been increased to $69 per ton, the latter price being at the present time the subject of appeal by both the manufacturers and consumers of newsprint before the Paper Control Tribunal.

The Attempt to Regulate Prices

In passing, it may be said that Government control of newsprint will ultimately work to the disadvantage of the consumer in both countries, since its effect has been to drive capital away from the industry and thereby to forestall any large increase in the output. Prices are not likely to come down while the demand continues to outstrip the supply. As a matter of fact, the attempt to regulate the price has reacted so that to-day an open competitive market exists for a large part of the output.

A gratifying feature of the industry is the growing interest in the promotion of technical education for its development. This is being advanced by the Technical Section of the Canadian Pulp and Paper Association, which holds periodical meetings for study and the exchange of ideas, also by the distribution of literature and the publication of special articles in the trade and technical press. Good work is also being accomplished at the Forest Products Laboratories, connected with the Forestry Branch of the Department of the Interior, and by the several laboratories maintained by different private companies.

Some attention has been given during the past year to the question of reforestation, which, however, is still largely in its theoretic stage. The Province of Quebec has added to its forest nurseries equipment at Berthierville, and increased the appropriation for its support. Several of the companies have also gone into the problem of reforestation in a way which promises good results in the years to come. Owing to the length of time required to get results, this work is adapted for Governmental consideration in which returned soldiers might be most profitably employed.

The subject of forest protection from fires, insects and disease, is also receiving greater attention every year and the present year has seen a marked advance along these lines, both in an educational and a practical direction.

So far as labor conditions and the question of raw materials are concerned, the industry is in the same transitory state that most other Canadian industries find themselves in,

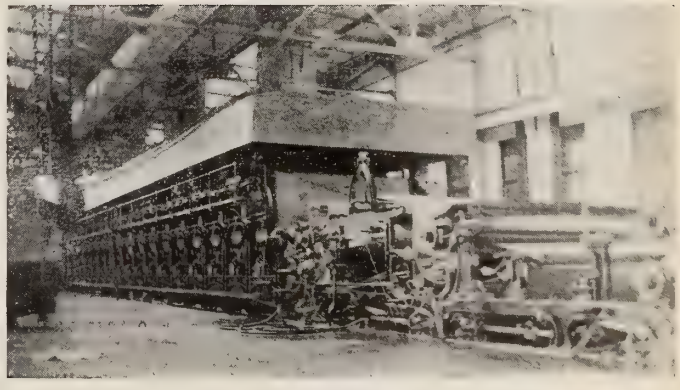
Three Steps in Newsprint Production



Stacking Pulp Wood



Making Ground Wood Pulp



Turning Out the Finished Product

in consequence of the abrupt termination of the war. Places are being made for as many additional employees as the manufacturers can find room for and the attitude of the industry as a whole is to exert its utmost endeavors to help in tiding over the reconstruction period. There will be plenty of work in the woods this winter for all men available, while the various mills are overhauling their plants and making long-delayed improvements and repairs in order to employ as much surplus labor as possible.

The outlook for the industry is encouraging in every sense. It is not likely that there will be any serious decrease in the demand for its products, at least for some time to come, nor is it at all probable that its possession of a large part of the American trade will be successfully challenged by European competition. Steps are already being taken by the manufacturers to broaden their export market and it is hoped to establish a good demand for Canadian pulp and paper products in Australia, New Zealand, South Africa, and in South America. A serious obstacle in the way of the realization of these plans at present is the impossibility of obtaining ocean tonnage, but there are indications that this will be supplied in due time. However, so far as this one industry is concerned, there is no more important problem for our Government to solve than that of promptly providing cargo space at reasonable rates in order that we may ship our products overseas. As soon as this is done, a healthy growth in the pulp and paper industry of Canada, may be confidently expected.



A Modern Canadian Pulp Mill

An Industrial Survey of the Prairie Provinces

By N. W. WARREN
Western Manager. Dominion Bridge Co., Limited
Chairman Prairie Provinces Branch, C.M.A.

WHILE Western Canada did not benefit to the same extent from the purchases of war materials as Eastern Canada did, at the same time a certain amount of munition work was done and firms engaged in the manufacturing of food products, such as packing houses and milling companies, were kept busy turning out supplies for the Allies. Then, too, some orders were received by Western manufacturers for harness and clothing, but generally speaking, Western Canada secured a very small portion of war orders.

When building operations ceased with the declaration of war, plants engaged in turning out building supplies were hard hit and several of them have only commenced operations again during the past year.

In view of the foregoing, one might naturally look for a very small increase in the output of the industries in the prairie provinces; but taking Winnipeg as a barometer of this territory, it will be seen that the West more than held its own, and, in fact, progressed materially, notwithstanding the conditions brought about by the war. The output of Winnipeg industries in 1914 was $43,000,000 and in 1917 it increased to $62,000,000. The figures for 1918 are not yet available, but no doubt they will show similar results.

While of course Eastern Canada still continues to manufacture the larger volume of Canadian goods, at the same time practically all manner and classes of goods required by a country such as the prairie provinces are made in Western Canada, and, in fact, some of the largest and best epuipped plants of their kind are found in the West. For instance, Winnipeg boasts of the largest saddlery business in the country. At Moose Jaw firebricks second to none on the continent are made. In Alberta clay products, including all kinds of stoneware such as bottles, crocks, etc., are produced. These are all of a very fine character and are fast replacing importations from the United States.

The industrial growth of the prairie provinces will naturally follow the influx of population. In this territory there is ample room for a population larger than in Eastern Canada to-day. In agriculture alone only some 12 per cent. of the arable land has yet been tilled. It is expected that after the turmoil and suffering of the war, especially that experienced by European peoples, these vast domains will receive a large increase in population.

The development of the natural resources of the prairie provinces, such as timber, minerals, coal gas, oil, etc., will no doubt go hand in hand with such an increase in population. As these are developed, industrial pursuits will be extended until Western Canada will produce the articles required by its population, and with this large home market no doubt manufacturers will then turn greater attention to export trade.

Western Canada provides one of the essentials in manufacturing, namely, cheap power. The development of water powers in Manitoba provides this for Winnipeg plants, and when the lignite coals of Saskatchewan are properly treated that province will have cheap fuel. At the present time some portions of Alberta are furnished with natural gas for power purposes at very low rates, and it is expected that research will develop further gas and oil fields in that province which will insure the advantage of cheap fuel. In addition to this a good quality of coal is mined in Alberta, which is available to manufacturers at low cost. One of the advantages that Western manufacturers enjoy is nearness to the Western market, and as this market grows this will mean more and more to them, as they will be better able to study its practical requirements, being close at hand.

What Western Canada needs badly from an industrial standpoint, is the development of iron ores to furuish its industries with all classes of this material. At the present time the dependence of manufacturers upon American iron, which has to be hauled long distances, is curtailing the growth of industry in this territory.

Canada's Chemical Industry Under Review

By the Utilization of the Water Powers of the Dominion, this Country is in a Commanding Position to Secure a Large Share of the World's Business in Electro-Chemical Products, and this Should Enable Canadian Chemists to Face the Future with Confidence

By THEO. H. WARDLEWORTH

National Drug and Chemical Co. of Canada, Limited, Montreal



One Reason for Canada's Supremacy as a Producer of Chemicals

One of the Hydro-Electric power plants scattered here and there throughout the Dominion

A VERY strong impluse has been given to the chemical industry during the past four and a half years. This has resulted from the very large part that Canada has played in the production of munitions of war in various directions. Fortunately for Canada, she was the Dominion nearest the Old Country, and therefore possessed particular geographical advantages of which her people were quick to take advantage. As a result of the work which was undertaken by various chemists, we produced in Canada many chemicals which had not hitherto been made in the Dominion. These may be mentioned: acid acetyl-salicylic, phenacetine, synthetic acetone and acetic acid, paraldehyde metallic magnesium, synthetic acetaldehyde.

While these new products were being manufactured, those industries which were established prior to the war were experiencing a very largely increased demand, and the manufacturers of acetone and acetic acid by ordinary methods were called upon to produce much larger quantities of methyl alcohol, formaldehyde, acetone, acetic acid, ethyl alcohol and other products. In fact, it may be said, that all our chemical factories during the period of the war were worked to their utmost capacity, and could have found an outlet for more if their capacity had been equal to the calls made upon it.

Canadians can look back with satisfaction upon the part which was played in the great war by the chemical industries of Canada. Not only did they respond to the call for products which they had been in the habit of making, but they rose to the occasion to produce now products to meet the new needs.

One of the notable new features in the chemical industry in Canada was the establishment of the Weissemann process for the production of acetone, direct from corn. This process is a fermentation one, and while yielding a very appreciable quantity of acetone has a by-product of a very much larger output, namely, butyl alcohol. The disposal of butyl alcohol was for a time a very serious problem, but it has been found that it is an excellent substitute for fusel oil, and can be used for the production of a solvent which is an excellent substitute for amyl alcohol and kindred solvents.

The chief difficulty in connection with the chemical industry during the past four and a half years has been the supply of coal and some raw materials, but there has been

no noticeable shortage except that caused by congestion of railway traffic during the winter. Labor troubles have been very few, and have never in any way threatened to interfere seriously with the production.

Shrinkage in Values

With respect to the domestic market, there has been very cautious buying on the part of all consumers and dealers who have shrunk from the necessarily high prices demanded during the war period. Since the armistice has been signed, there has been a rapid shrinkage in the value of one or two products only, notably glycerine and saccharine. Glycerine has tumbled from the high price ruling prior to the cessation of hostilities of about 60 to 65 cents per pound to 17 cents. There are now large stocks of the dynamite and refined grades, and it will be some considerable time before the article can be expected to resume anything like normal conditions. Saccharine also fell suddenly, and may be expected to reach its normal range of value at an early date.

Generally the trend of prices will be downward, but it is thought by those who are familiar with the trade that the movement in general chemicals will be necessarily slow, and many will not revert to their pre-war values.

The chemists of Canada may with every confidence look forward to the future. A great deal of attention has been concentrated upon the utilization of our natural resources, and this will lead to the steady application of many minds to the development of new industries which have been exploring the possibilities in Canada. Our export trade will largely depend upon the manufacture of those products which can be produced from raw materials native to Canada, or to the expansion of the wonderful resources we possess in water power in connection with electro-chemistry. By the utilization of our water powers, we are in a commanding position to secure a large share of electro-chemical products, and this would enable us to face the competition of the world with a large measure of confidence.

The work of the Industrial Research Commission should do much to help in this extension of Canada's activities, and it is to be hoped that the new proposed research laboratories will do much in this direction.

Activities of Societies

During the past year a great deal of activity has been shown by the Society of Chemical Industry's Canadian branches, and the allied societies in British Columbia and Winnipeg. The membership has increased very considerably, and for the first time in Canada, a convention of industrial chemists was held in Ottawa in May, 1918, when matters of considerable importance were considered, and many matters dealing with the industrial development of Canada were under discussion.

Canada possesses very considerable advantage in the abundance of its natural resources, and if its industrial chemists will devote the necessary attention to research the Dominion need have no fear as to its taking a strong place in the future chemical industry of the world.



Chaudiere Falls

These are located on the Chaudiere River not far from Quebec City

State of Agricultural Implement Industry

World Markets that have been Wholly or Partially Closed to Canadian Manufacturers are again Becoming Available—Needs are so Great that Production Capacity of the Canadian Industry Will be Taxed for Some Time to Come—Condition of the Home Market Outlined

By the General Manager of a
Canadian Agricultural Implement Manufacturing Company

EXPORT markets for agricultural implements will be larger in the period of reconstruction than was the case under normal trade conditions. Production in our company's plants during the war was approximately two-thirds of the average of the preceding three years. We have anticipated an enlargement in business in the future by enlarging our productive capacity by from one-quarter to one-third. There should be a fairly rapid opening-up of the export business. European requirements are pressing and this trade is likely to re-commence with little delay. The shipping situation has become easier in the few weeks since hostilities came to an end. The destruction of farm equipment in the invaded areas will make replacement necessary on a tremendous scale and the agricultural implement industry of Canada can reasonably expect to undergo expansion in meeting this need. World markets that have been wholly or partially closed to us are again becoming available. Some of the great importing countries are still involved in turmoil, and this may minimize their importance as consumers of our products for some time. In other directions, however, the needs are so great that the production capacity of the Canadian industry will be taxed for some time to come.

The cause of the falling-off in production during the war was the closure to us of some of our principal markets. Commercial relations with Germany and Austria-Hungary were discontinued when those countries became belligerents in 1914. The unsettled conditions that developed in Russia made it impracticable to carry on trade in that direction. Business with the neutral nations was also curtailed by shortage of ocean tonnage for ordinary mercantile purposes. The Scandinavian countries and Holland were practically cut off. Roumania and Bulgaria were inaccessible by reason of the military developments in the Near East. Italy ceased to be a purchaser on account of shipping difficulties. The invasion of a large part of France's most productive areas reduced the import needs of that country for agricultural machinery by fully one-third.

Great Britain a Large Buyer

Great Britain, on the other hand, was a more extensive buyer than under ante-bellum conditions. This was due to the encouragement of agriculture to aid in the solution of the food problem. The agricultural implement plants of Britain were turned over from their ordinary work to the production of munitions, and this served to increase the import needs still further. Australasian trade was below normal on account of the impossibility of securing shipping space, and the same applies with reference to South African business.

Beginning in 1916 it became increasingly difficult to secure supplies of raw materials. In order to ensure adequate quantities of materials, it became necessary to provide for needs for from six to eight months further in advance than usual. Concurrently a scarcity of labor became apparent, becoming more and more acute in the latter stages of the war. Besides being scarce, labor became restless, and was more transitory than under ordinary conditions. Advances in wages amounted to an average of between 60 and 70 per cent. The increases came more or less gradually, but the above advance would apply for the whole of the last two years. Prices of finished products were necessarily increased, by the much higher labor costs and the enhanced values of raw materials. Profits were affected as compared with the pre-war period about proportionately to the output.

Our munition work was carried on entirely distinct from the implement business, as a separate plant was erected and additional machinery was secured for this undertaking. The equipment of the munition plant has been disposed of to some extent, and the general purpose machinery that is found suitable is being utilized for our other work.

Outlook for the Future

Methods of manufacture have not been greatly changed during the last four years. There has been normal improvement, such as ordinarily attends the operation of industries. The only new line of manufacture entered upon has been that of farm tractors. The development of this implement at this stage possesses much significance both at home and abroad, since the wastage of war has reduced the number of men who follow agricultural pursuits.

With regard to the future, our supply of raw materials has already been secured for the whole of 1919, at the high prices that prevailed during 1918. Products for this year will therefore be somewhat more costly than they have been for the last twelve months. Materials are much easier to obtain, with the removal of import restrictions. This, accompanied by the improvement in the shipping situation noted above will enable much larger shipments to be made during the current year. Plant extension includes the enlargement of our Toronto and Brantford plants and the purchase of a factory and adjoining land at Weston.

Values of our products in 1919 will be five per cent. higher than they have been during the past year, since the raw materials being used are more costly, and labor costs are unchanged at the high level that prevailed before the end of hostilities. The margin of profits will be constant with last year.

The Canadian market for agricultural implements was practically normal during the war. The good harvest of 1915 in the Canadian West and the high prices of grain for the three years following has fully maintained the purchasing power of the Canadian farmer. The need for larger production of cereals induced the cultivation of a larger acreage. Immigration to Western Canada as an aftermath of the war is calculated to augment the grain production of that territory, and added to the normal needs of the Prairies will widen the domestic markets and provide greater scope for the manufacturers.

Piano Industry—a Retrospect and Forecast

The Strain of War Promoted Efficiency and Co-operation in the Piano Industry—Though not a Period of Favorable Balance Sheets it has been a Time When Demand Exceeded the Supply and When Manufacturers and Dealers have been Introducing Reforms and Improvements into the Business

By E. C. SCYTHES

Vice-President and General Manager, Nordheimer Piano and Music Co., Toronto

IN the piano trade a state of paralysis followed the outbreak of the war, and those engaged in the industry were faced with economic conditions such as they never before experienced—not even during the periods of severe strain and depression through which piano manufacturers and dealers have passed since the inception of this business in Canada.

For the first few weeks it looked as if a closing down of most of the factories would be the wisest course—the alarm that the war created in the popular mind caused almost a total cessation in retail buying and dealers in turn cancelled orders and contracts with manufacturers. The absence of orders necessitated the laying off of a large number of workmen—many of those of military age and fitness were quickly absorbed through enlistment in the volunteer army, while the others gradually found employment in war work.

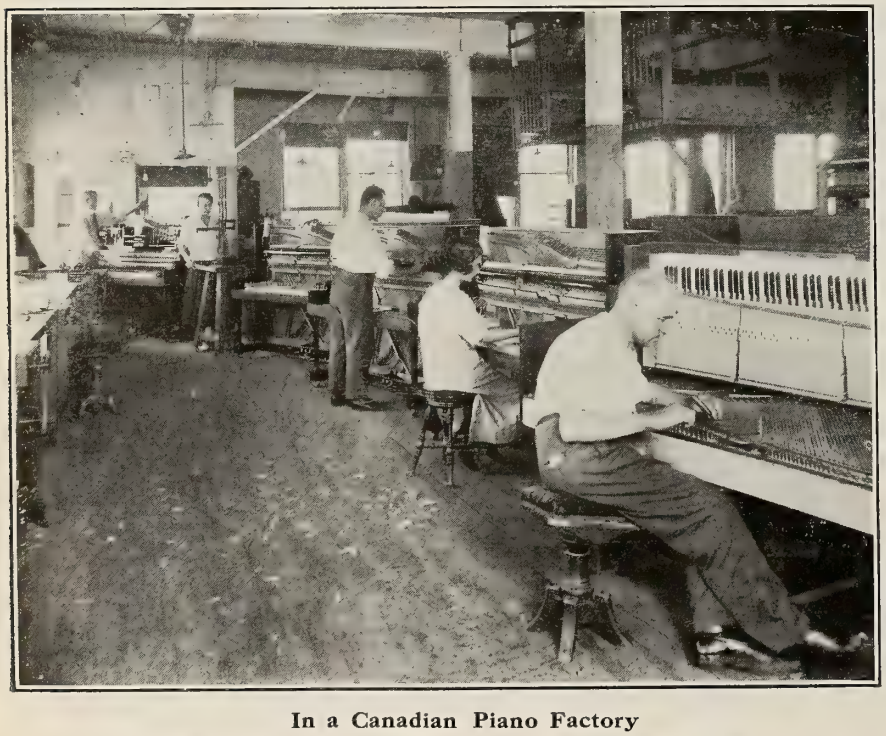
When war was declared there were employed in the 32 piano and organ factories over 5,000 hands; of this number 1,334 volunteered for active service.

Piano manufacturing, particularly in the producing of the higher or artistic grades, requires that a large percentage of the workers shall be skilled and experienced, so that the retaining of the backbone of the manufacturing organization was of paramount importance if the employer wished to avoid a serious handicap upon the return of normal demand.

Many of the men employed in piano factories are beyond military age, and it was these older men who proved the bulwark of the business from the time of the gradual upward trend in the trade, which started in the latter part of 1915. In order to hold the backbone of their organizations intact, a number of the concerns resorted to a curtailment in the number of working hours instead of fewer hands and full time.

The length of time required for the building of a high grade piano has a pronounced bearing on its cost. Certain kinds of lumber to season properly must be stocked for years ahead, but aside from the preparation of woods, the process of manufacture covers several months for every instrument. With fine grand pianos the varnish work, shipping and tuning and the intervals allowing for the proper setting of the instrument under the strain of tension, requires eight to ten months in order to send out a seasoned and matured piano. With the advanced cost of all materials and the increased expenditure for labor, one can readily see how additional capital would be absorbed in the manufacturing end.

The disturbance in financial circles made it difficult, yes, impossible for those who were not in a strong financial position to borrow against the liens which constitute such a large portion of the retail piano trade. Because of the prevailing credit or instalment system the retail trade as a whole had a large surplus maturing in monthly or quarterly instalments, which proved to be a source of strength as well as weakness—it proved a strength during the liquidation period because it brought a steady inflow of money, out of which the dealer met his expenses and obligations.



In a Canadian Piano Factory
In this department, tuning, action and key setting are in progress

The large numbers of men suddenly thrown out of employment as a result of the hysteria of the war and the uncertainty as to the future, naturally resulted in many previous purchasers defaulting in their payments, and repossessions were plentiful at some points; at others the percentage of reversions throughout the entire period of the war was surprisingly low.

Almost from the commencement of the war a demand was felt for second-hand pianos, so that any repossessed instruments found ready buyers. Through enlistments or other causes many owners offered their pianos for sale. Realizing the demand for the like, dealers readily purchased instruments of standard make and grade and by trading in these produced a certain turnover, but this growing demand meant a great deal more to dealers and manufacturers alike—it showed that the need for music was stimulated by the strain and stress of the war.

A rapidly increasing demand for the less expensive phonograph was a further evidence of the craving for music as a solace

and comfort in the lives of the people during the harrowing experiences of the war.

The place the piano enjoys as a necessity in the education of the youth of the country was never more clearly recognized or more firmly established than during the earlier period of the war. The sale for new instruments during the first two years, which might be put at 50 per cent. of the normal output, could be accounted for almost entirely by the demand from this source. Music, instead of being regarded as a luxury or a non-essential, became to be looked upon as a household and economic necessity. Indeed economists class music as the fourth necessity of mankind—the first necessity after the prime necessities—food, raiment and shelter.

The British War Office tried to dispense with the military bands, but when the men came out of the trenches with nerves shattered from shell shock and hardships, they soon answered their appeals by sending not only bands, but singers and other forms of entertainment.

It is claimed that the "Marseillaise" was worth a million men in reviving and inspiring the war-worn armies of France. In industrial life employers are recognizing the part that music can be made to play, not alone because it cultivates concentration, quickness of the eye, alertness of the ears, a more facile and nimble mind, but because it tends to promote contentment and harmony among the workers. Some firms have already made large contributions toward the development of bands and orchestras within their organizations, while others, recognizing its importance, are ready to encourage any movement in that direction.



The Stringing Department of a Piano Factory

The superintendent is seen instructing a girl worker, who has developed into an expert

With the general prosperity which was beginning to be felt early in 1916, and with short stocks through the country a steady increase in demand for pianos was felt. Factory production was stimulated, but the higher wages paid for munitions and other war-work made it impossible for piano manufacturers to draw back men belonging to our industry.

Export Inquiries Increase

By this time the effect to the piano trade of the collapse of the German foreign trade showed itself by the enquiries from Australia, New Zealand, South Africa, England and South America. Australia imported 13,000 pianos in 1913 from Germany. England and the other countries named were also large importers of German-made pianos. Germany was also a big supply market for piano parts. Prior to the war, Germany was second only to the United States in the quantity of pianos produced, but held 90 per cent. of the export business of the world in finished instruments, parts and materials. England not only prohibited imports, but placed such restrictions on her piano manufacturers that production in that country was reduced from about 125,000 pianos per year in pre-war times to 12,000. This so crippled the industry that the demand could only be partially met by buying up old pianos and rebuilding them. Toward the end of 1917, the Government, recognizing the importance of the industry, permitted the number of new pianos to be increased to 30,000 a year.

In France similar conditions prevailed, because of the shortage of materials and labor, the trade being largely in second-hand and rebuilt instruments.

Increased costs and shortage of labor, together with a constantly growing shortage in certain classes of materials which tended to a steadily rising market combined with the quickening of the demand at home, prevented the Canadian manufacturers from developing their opportunities for securing foreign trade. Some export business was done, particularly in the cheaper and medium grades, but the difficulties in securing space for ocean-going freights and the high rates of ocean transport greatly mitigated against the development of this trade, until the embargo stopped it altogether.

The period of the war, despite the active sale for both pianos and phonographs during the past two years, has not been one of favorable balance sheets for the manufacturers—the shortage of help, the acute scarcity of materials (quotations for supplies being for prices prevailing at time of shipment) all increased the difficulties for the manufacturer in advancing his prices sufficiently to meet the increased cost of production and advanced overhead resultant upon decreased output. It has, however, been a profitable one in another direction. For the first time in our generation the piano manufacturer has had a sellers' market—demand exceeded the supply. The buying public have learned that pianos and other musical instruments have a "real" value, and when wanted are badly wanted.

Prices and Terms More Favorable

We have been able during the past two years to obtain prices and terms never before realized. This has been largely because war-time conditions have forced manufacturers and dealers to inject business-like and well defined terms in order to prevent the scattering of capital resources through the long terms that have been prevalent. It has brought its benefits, too, through closer organization and co-operation of manufacturers and dealers, so that many long-standing evils have been wiped out. We have also through necessity been learning much about defects in methods of production and have learned to effect many economies once thought impossible.

An industry that could pass through the acid-test of the past four years without learning lessons of incalculable value for its future progress would be a wholly futile and useless industry. We trust no such industry exists—we are certain it is not the music industry of Canada. We have learned that

pianos, player pianos and phonographs have a real value and that there is a real market for them. We hope we all have learned the folly of over-production and reckless merchandising and the value of co-operative effort. There are certainly no indications at the present time that prices will come down. The labor situation is easier only in the return to the trade of piano workers who have been engaged in aeroplane and munition manufacturing, and we look forward to the return of those who answered the call of flag and country who will come back safely again to take their peace-time vocation.

Shortages of certain materials must prevail for some months and prices remain high. The piano trade emerges from the war more firmly established as a solid and basic industry, better organized to hold the home market, and, with proper encouragement of trade associations and credits, to compete for some share of that foreign trade which Germany has lost and which must be supplied by some of the Allied countries.

The music trade has played its part generously in regard to partiotic contributions and when certain war taxes applying to the industry were proposed, a delegation was sent to Ottawa not to protest, but to assure the Government of the willingness of the industry to co-operate and to assist them in formulating plans for the carrying out of the measures to the best advantage of the Government and with the minimum disturbance to the industry itself.

The outlook for the future is promising because of the awakened and developed interest in music of our Canadian people and also because of the wonderful development that we believe will take place in this great Dominion of ours.

New Automobile Markets Are Revealed

By JOHN N. WILLYS
President Willys-Overland Company

(From the "Michigan Manufacturer")

LIKE all big producers of the world's goods, the automobile manufacturer has puzzling problems immediately ahead of him in turning his productive capacity from a war to a peace-time basis. But while these problems are important and immediate, he is already far enough along in their solution to regard them optimistically as merely a necessary means towards a wonderful end.

To the manufacturer of automobiles, the future looms bright with increasing possibilities, revealing new markets, both foreign and domestic, which up to the present time have scarcely been touched.

The automobile manufacturer feels more than ever that the tests of war have vindicated his belief in the remarkable efficiency of his product and the vital way it fits into the general scheme of life and business the world over. He feels that his industry is now better understood, that the remarkable engineering achievements that made the successful motor car possible, which before the war were merely taken for granted, are now better sensed and appreciated by the general public.

He returns to the task, after war-time curtailment and suspension of effort, believing that the automobile industry as a whole is still in its youth, and with the vigor of youth, inspired by rest and relaxation, will tackle the development of this great agent of transportation as never before.

A Time of Readjustment

There will be, of course, a certain period of time elapse before manufacturers in general will be able to get back to a pre-war production basis. Just how long that period will be is hard to say. It will vary in many instances, for some manufacturers have been engaged to a greater degree on war work than others.

But people must not think that the development of the passenger car was wholly abandoned during the period of war. The work of the experimental room still went on. Ideas in their first stages were matured and installed in the product. New models which had not yet left the experimental and designing hands have been refined and perfected. Most manaufacturers decided long ago just what they were to make as soon as sufficient materials, labor and machinery should not be needed by Uncle Sam.

The demand for automobiles will be unprecedented at home and abroad. The effect of European competition, especially in export markets, will not be seriously felt until the countries in the war areas have rebuilt their industries, filled their own requirements and been able to manufacture a supply to sell to other countries.

Motor cars have become such a vital part of the very fabric of life that their production is bound to be governed by practically the same laws as any other commodities. Cars will be used, worn out and replaced the same as shoes or clothing or anything else entering so intimately into a man's life.

The Element of Real Utility

All this will have a stabilizing and beneficial effect on the sale of automobiles. When the good accomplished or the work done by an automobile is judged fairly from the standpoint of economy in time, convenience, health, etc., the so-called merely pleasure riding almost entirely disappears before the light of real utility.

The curtailment of passenger-car production during the war has practically cleaned up the second-hand market. This will help the dealer solve problems which have been serious and also enable him to start the reconstruction period of his business in a clean-cut manner with a distinct demand for new and better cars.

Value will be sought as never before. The public will demand a car fully equipped by the manufacturer with all the possible essentials necessary for its successful and comfortable operation covered by the first purchase price.

The class of people operating cars as a necessary part of their household equipage, who, because of patriotic motives, have not made their purchases with the customary regularity, are now rushing to get quick deliveries. The business man is figuring as never before the part the motor-driven vehicle may profitably play in his business. The man of moderate means sees the joys of reconstruction spent by himself and family in his moderate-priced but efficient automobile, and the farmer, with eyes wide open to the vast importance to him of saving time and labor, will depend on the motor as never before.

I look for a period of great activity and accomplishment in the automobile industry.

Position and Prospects of the Dairy Industry

Total Value of Exported Cheese, Butter and Condensed Milk will Probably be Over Fifty Millions of Dollars for 1918—No Reason why 1919 Should Not be Fully as Good as 1918 and the Same for Succeeding Years with a Steady Growth—Problems Before the Industry

By H. H. DEAN, B.S.A.

Professor of Dairy Husbandry, Ontario Agricultural College, Guelph, Ont.

THE dairy industry of Canada occupies a unique position among the industries of this country. First, it has to do with a large number of chiefly small producers of the raw material, milk and cream, scattered on farms between the Atlantic and Pacific oceans. Because of the wide variations in the conditions on these farms, it is practically impossible to standardize either the cost of production, or the quality of the raw material, which is furnished to the manufacturers of dairy goods; or, to the dealers who sell milk and cream direct to the consumers. The second unique condition in the dairy business is that the manufacturing may be, and is done, in places as widely different as that of the farmer's kitchen, where the total value of building and plant may not exceed one hundred dollars, to that of the modern creamery, milk condensery or powder milk plant, where the investment in building and machinery is over one hundred thousand dollars.

The third striking feature about dairying is that the manufactured goods are marketed in ways which vary from a huckster's market wagon to car-lots of butter or condensed milk, controlled by highly organized selling corporations backed by almost unlimited capital. More particularly is this the case with the condensing and powder-milk concerns.

Rapid Rise of Creameries

The most marked changes which have been brought about with reference to manufacturing dairy products within the last ten years, is the rapid rise of creameries and milk condenseries, and the tendency for cheese manufactories to remain stationary or decline in numbers. It was the cheese of Canada which put this country on the world's food-map, but previous to the war, our cheese exports were falling rapidly, having declined from, in round numbers, 224 million pounds, valued at 24 million dollars in 1904, to 144 million pounds, valued at 19 million dollars in 1914. In 1915 there was a further decline to about 137½ million pounds in our cheese exports. The outbreak of the war stiffened cheese prices and consequently caused the export cheese trade to take on new life, so that in 1917 the export of cheese reached about 172½ million pounds, which, at the increased price, represented a value of about 37½ million dollars, which is the highest figure in dollars value ever reached in export cheese from Canada. The figures for 1918 are not yet complete, but indicate that there will be a falling off of over 100,000 boxes of cheese as compared with 1917. However, as an offset, the price of cheese as fixed by the Produce Commission for 1918 is considerably higher than that of last year—23 cents per pound up to October, and 25 cents for the fall make, as compared with 21 cents per pound last year, which will no doubt bring the money value of export cheese for 1918 equal to or above that of last year. An estimate of 40 million dollars has been given.

The high price of butter in the English market has stimulated the export trade in this article to some extent, but Canadians are very fond of good butter, much more so than of cheese, consequently most of our butter is consumed at home, although we shall probably have an exportable surplus of about ten million pounds for 1918.

The total value of exported cheese, butter and condensed milk will probably be over fifty millions of dollars for the year 1918. A peculiar feature about the dairy business is that it is a "repeater," that is, there is no reason why next year our dairy business should not be fully as great as in 1918, and the same for 1920 and all succeeding years, with a steady growth, because the cows in 1918 are ready to do business again in 1919 and a new crop of cows will be ready in 1923 and for each succeeding five years, *provided it pays the dairy farmer to feed, milk and raise cows.* In this respect the production of milk differs from the production of all other high-class animal food products, such as meat, in which latter case the farmer has to provide a new set of animals each year—the dairy farmer once in five years, on the average.

Number of Factories by Provinces

The following table shows the number of creameries, cheeseries and combined factories which make both butter and cheese, and the manufactories for condensed milk and milk powder, in the provinces of the Dominion, as given in Bulletin No. 54, Dominion Department of Agriculture, Dairy and Cold Storage Branch:

Province.	Number Creameries.	Number Cheeseries.	Combined Factories.	Condensed and Powder Milk Plants.
Ontario	172	928	42	16
Quebec	559	890	536	1
Br. Columbia..	25	2	2	3
Alberta	52	7	14	..
Saskatchewan .	24	..	..	..
Manitoba	41	26	..	1
New Brunswick	18	24	1	..
Nova Scotia ...	22	3	..	1
P. E. Island ..	11	15	15	1
Totals	924	1,895	610	23

It will be seen from the foregoing that the bulk of our manufactured dairy products is made in the Provinces of Ontario and Quebec. The Western Provinces and also the Maritime districts are rapidly increasing their output of dairy goods, chiefly butter, so that it may not be long before the western sections of Canada are producing more butter than the East. The possibilities of expansion in our western country are unlimited, and we may expect to see this the greatest dairy country in the world after the "wheat craze" passes away.

Conditions Affecting the Milk Supply

Two factors have tended to keep milk production about normal during the past four years, in spite of the stimulus of high prices for milk and its products. These factors were lack of labor and high prices for all kinds of feed. The drafting of labor from farms to the army caused a very serious shortage of a prime requisite on dairy farms, skilled labor. A higher class of labor is required for dairying than

for any other kind of farm work, because the dairy cow is a highly organized animal, extremely sensitive to unfavorable conditions, and her product, milk, is one of the most easily contaminated foods produced. In addition to this, it quickly spoils, hence must either be consumed in a short time after it is drawn from the cow or be manufactured into more or less non-perishable forms of food like butter, cheese and condensed milk.

Although the trend of prices for dairy products has been steadily upward during the period of the war, milk producers claim that the increased price has no more than paid for the increased cost of labor, feed and overhead expenses—in fact some claim that they made more profit out of their milk previous to the war than they have since.

Our transportation systems have not been able to meet satisfactorily the extra demand made on them during these past four years. Farmers have been unable at times to get feed for their cows, and the shipments of milk, cream, cheese and butter have been seriously handicapped. At one time it looked as if it would be impossible to find space on the steamships for our export cheese and butter. Only the almost superhuman efforts of the Produce Commission, acting for the Canadian and Imperial Governments, was able to solve the problem. The question of finance was also a serious problem. Happily the Canadian Finance Minister came to the rescue with a loan of something like forty millions of dollars in 1917, and again in 1918, to pay for the dairy goods shipped to food-short Europe. Without this financial aid, our dairy industry would have been seriously crippled during the past two years. The great need of cheese and butter for the allied armies and for the civilians who were struggling for freedom overcame all difficulties of transportation and finance, and, as a result, the dairy industry has received a stimulus which will send it forward for many years. An outstanding feature of dairying is that it is on a strictly cash basis, and the farmer who so desires may milk his cows in the morning and sell the milk or cream, get his money and have it all spent or deposited in the bank before dinner. The dairy farmer does not run a "tick" business, as is the custom on grain, beef and fruit farms, where the usual custom is to be "rolling in wealth" for a short time each year, and then ask credit at the store or bank for the remaining time, until a new crop is sold.

All are agreed that we are facing new conditions at the close of the year which will be known in history as "Victory Year." Will the present prices hold when the world returns to normal conditions? is the question above all others which food producers are asking themselves. Already the grain-growers of the West are requesting the Government to guarantee prices for the 1919 crop. They are apprehensive lest prices may fall so low that it may not pay to risk a large acreage in commodities which are easily grown, and of which it is reported that there are large stores in distant countries that will be available as soon as the ships are free for transportation.



The Basis of the Dairy Industry,—A Fine Herd of Cattle on a Canadian Farm

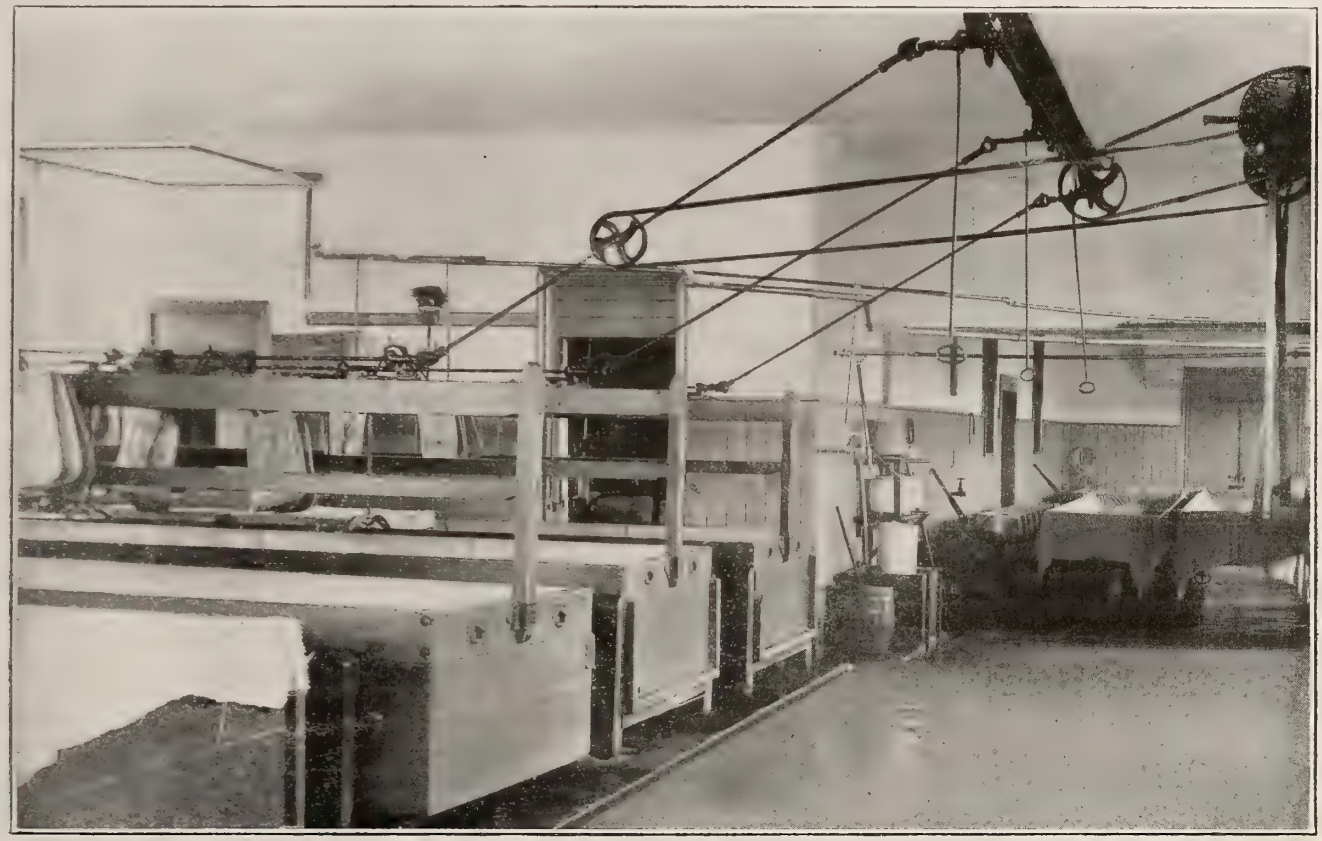
The continued safe position of the dairy business in Canada seems to be assured for some time—first, because the dairy herds of Europe have been sadly depleted and it will require at least five years to replenish these from their limited foundation stock, part of which may have to be imported from Canada and the United States. Secondly, milk and its products are essential for the proper growth and development of the human race. Since the human mother of to-day no longer considers it fashionable to rear her young in nature's way, without the dairy cow children would starve, and it is estimated that the human race would be practically extinct in five generations if it were not for cows' milk. For "grown-

ups." butter supplies nourishment for the body and oil for the brain, while cheese is one of the best muscle-builders known. Considering their great food value, dairy products have been sold altogether too cheaply in the past, and we may safely say that while there is likely to be a sagging in the prices, milk, cheese and butter will never again go so low in the world's markets as they were previous to 1914. The war has shown the peoples of the world how dependent they are on the products of the dairy. The co-called "vitamines" are found in milk to a degree not found elsewhere in nature. The chief cause of so many ill-looking, poorly-developed children in the large cities is that they do not receive sufficient milk to furnish the necessary growth-principles. It is a national duty to provide all such with sufficient milk. A pint per two-year-old child, per day, is needed in order to properly develop children.

of two cows per 100 acres of farm lands, whereas in the United States they have three cows per 100 acres; in Great Britain, Italy and France, five; in Germany, eight; Denmark, fourteen; and Holland, sixteen cows per hundred acres, we see how very low our cow population is according to area of land. In some parts of Holland, Denmark and the Island of Jersey, in normal times, they maintain one cow per acre of tillable land.

Looking at the whole question at the beginning of a new year, a few things stand out prominently. These may be briefly summarized:

1. Better country roads are needed in the country districts and to leading markets, so that the cost of hauling the raw materials to the factories, and the finished product to market, may be lessened. The expense of hauling milk, cream, cheese and butter over the abominable roads to be found in most



Some of the Equipment in a Canadian Creamery

There are those who say that there is danger of overdoing the dairy business and that it will be impossible to find a market if we expand our trade very much more. The writer has been closely identified with the dairy industry of the Province of Ontario during the past twenty-eight years. He has heard this same pessimistic argument at times during all these years, yet the fact is, dairying was never on so sound a basis as at the present time, nor were the prospects better at any time in the past than they are at the beginning of the new year, 1919. Not only will our growing population at home absorb an increasing amount of dairy goods each year, but as a result of the war, there is a shortage of butter in the United Kingdom of over 200 million pounds. A similar shortage exists in European countries of cheese, condensed and powder milks.

Also, we have almost unlimited room for expansion. When we consider that in Canada we are keeping but an average

country sections is altogether too great. Roads are needed over which motor trucks may be operated and thus cover twice the distance daily which horses are able to do. The hauling may also be done in very much less time by motor.

2. The dairy farmer must be able to purchase necessary machinery in order to reduce both horse and hand labor on the dairy farm. The introduction of the small tractor would mean less horses required, which means more feed for cows. Every unnecessary horse on a dairy farm takes the feed which would otherwise go to a cow. The milking machine reduces hand labor, and is almost a necessity where herds of twenty or more cows are kept.

3. The manufacturing of cheese and butter needs some radical changes, more particularly along the line of better business methods and the reduction of the number of factories, more especially for the making of cheese. The factories should be consolidated under good management so

as to be able to purchase manufacturing supplies in car lots, and also be able to manufacture goods of such uniform quality that they may be sold in car lots. It is doubtful if public funds may be used very much longer to bolster a system that lacks the essentials of sound business and has practically outlived its usefulness.

4. Some system of grading and testing the milk and cream delivered by farmers and paying for the same according to quality is very much needed. Farmers are very much dissatisfied with the present methods, consequently there is either no grading or testing of the raw material, or it is done in a manner which causes dissatisfaction.

5. There is great need of more sympathetic co-operation between manufacturers on farms and in factories where dairy foods are made, and the manufacturing interests not directly concerned in dairying. The food cost of workmen in cities is a direct charge against all manufacturing and mercantile concerns, hence it is in the best interests of both food producers and food consumers that they shall work together and thus advance the welfare of all Canada and all Canadians.

Canadian Milling Industry Faces Uncertainties

By THOMAS WILLIAMSON
President. St. Lawrence Flour Mills Co., Montreal

THE prospects for the present year for the milling companies of Canada are very good. I am not going to discuss the difficult question as to whether we should follow the United States in fixing prices for the new crop. Our prices in Canada are guaranteed to August 31, when the fiscal year ends for the most of the large mills. This leaves us clear sailing at a fixed price for wheat which means a fixed price for flour, and a guarantee of the disposal of our product at a price that will provide a fair profit to the mills.

Just at present we are faced with some uncertainty as to the amount of export business that will be given us by the Wheat Export Company. We were informed that the Wheat Export Company, which buys all the Canadian flour for export, would need during the year up to August 31, 6,000,000 barrels of flour, or 600,000 tons, and up to the present they have taken very little. To fill the balance of the order will keep the mills going for the rest of the year. For a couple of weeks orders have been shut off, but we are arranging for a conference to straighten out the difficulty that seems to have arisen. One of the reasons is that shipments to the sea coast have got tied up, and they want the stocks that are awaiting ocean carriage to be disposed of before new orders are given.

Looking into the year after this, a difficulty looms up that no one can solve at present. The price of wheat is guaranteed in the United States to cover the crop of 1919. No such guarantee has been given as yet in Canada, but there may be a demand on the part of the grain growers for similar action in this country. The question that arises is, how can the Canadian mills compete with other wheat producing countries if the price paid for wheat is greater than in these other countries? In Australia, for instance, the price is almost one dollar a bushel less than the price in Canada, but, on the other hand, the freight rates to Europe are excessive and a great deal of the difference in prices is eaten up in this way, so that it is difficult as yet to figure out the relative advantage, if any, that is possessed by Australian wheat prices over those guaranteed in Canada. It has been said that if prices were not fixed in Canada and wheat took its chance in an open market that the price next year would decline as much as one dollar a bushel. I have grave doubts of that, although it might be a little less. In the case of corn this did not happen; when the armistice was signed it was $1.12 a bushel; to-day it is up to $1.50. We must remember that there will be a tremendous demand for wheat and flour all over the world for three or four years to come. The warring countries cannot possibly get back to normal production for some years, and Canadian wheat and flour will be required all over the world.

From reports of the International Food Control Committee just to hand, I would conclude that there is an urgent demand for flour from Eastern Europe, and a tremendous demand for feed stuffs.



A Mammoth Elevator and Flour Mill at Fort William

The elevator has a capacity of 2,250,000 bushels, while the mill can produce 2,500 barrels daily

Canada's Fertilizer Industry Is Expanding

Was in its Infancy when War Broke Out in 1914, but has since Grown by Leaps and Bounds—Essential Character of its Product in Increasing Agricultural Production—What Manufacturers Are Doing to Promote its Wider Use

By HENRY G. BELL

Director, Soil and Crop Improvement Bureau, Canadian Fertilizer Association

CONSPICUOUS among Canadian industries which have experienced a tremendous expansion during the war years is the Canadian fertilizer industry. It was but in its infancy in 1914. The essential character of its product, however, caused it to grow by leaps and bounds since the outbreak of war, and at no time in the history of the country has it been able to render more service than it is capable of doing now. Food will be the great article in demand for the next couple of years. Our allies, subsisting on maintenance rations, must have their larders replenished, while, if we are to maintain the high standard set by our actions in joining in the conflict, we must take an active part in feeding our erstwhile enemy. This is bound to call for an enormous increase in food production.

The Canadian fertilizer industry is the only industry preparing food for crops. To the average man this may seem a new line of effort. The fertile acres of Canada have for decades been supplying medium crops of passable quality, so that hunger has rarely been known in Canada. But we can no longer be content with ordinary accomplishment. Land values have been steadily increasing, hence the yields of former days do not represent the same rate of interest on investment in land that was forthcoming when land was cheap. Moreover, the great call for more food, with its accompanying skyward movement in prices, is no small incentive to larger yields. Finally, the very future of this country is bound up in the speed and success with which Canadian farmers adopt the most intensive methods of crop production. To this end no one industry can contribute as much as the fertilizer industry. This does not mean that fertilizers will take the place of other essential factors such as good drainage, proper tillage, the use of high-grade seed, control of plant diseases, and insects, etc.; but it does mean that if fertilizers are used in combination with all other factors which enter into best crop production, the final result to the farmer will be most satisfactory. This is not a vision, it is a fact established by over a century of history in Great Britain, France, Germany and Eastern United States.

The fertilizer industry was the product of war. We are just now beginning to cast about us for the great inventions which have been forced to the front in the white heat of the conflict of the last four years. History establishes the fact that the beet-sugar industry was a product of the Napoleonic wars. What will be the great discovery of the world-war now closing? We said that the fertilizer industry had its birth during war times. It was really a post-war development.

During the early years of the nineteenth century the population of the more important European countries increased rapidly; in fact, so rapidly that the production of foodstuffs did not begin to keep pace with the demand. Scientific observation noted an important fact. On the battlefields of Europe, where the bones of poor, unfortunate men and animals were buried, grain crops grew more prolifically. Especially was this the case as the bones disintegrated, though the process was slow. The French scientist, De Soussure, had for a century established the fact that the food of plants must be soluble in water or root juices before it could be taken up. The combination of these two concepts at the hands of science did the trick.



Inside a Fertilizer Curing Shed

After fertilizers are manufactured they stand in curing piles for from three to six months to insure completion of all chemical action. They are then reground and resifted, before being shipped to the farmer

Investigators discovered that when bones were ground and treated with standard sulphuric acid they broke down into a readily available form which delivered up their essential plant food. This plant food was the plant ripener—phosphoric acid. An Englishman whose name is one of the corner-stones of world progress, immediately put the discovery into practice. In 1842 Sir John Bennett Lawes, a millionaire, of London, took out the first patent for the making of super-phosphate and established the Lawes Manure Company, which is still doing business. The supply of bones quickly fell short of the demand. An ardent search resulted in the discovery of the great phosphate fields of North America, located in the South-Eastern States, with untouched quantities in the far Western States. This rock is chemically closely allied to bones. Investigators, in their study of plant nutrition, established the fact that in addition to the plant ripener there must be provided a source of plant grower (nitrogen or ammonia), and a carrier of plant strengthener, and starch former (potash), if crops are to do their best. These steps have been responsible for the development of the great fertilizer industry.

For nitrogen carriers, the mines of Chili, South America,

produced large quantities of nitrate of soda. Improved processes in coking of coal rendered the valuable by-product, sulphate of ammonia. The discovery of methods of making nitrogen carriers synthetically is the latest great contribution to the science of plant food. Synthetic ammoniates are made by combining the calcium of limestone with the carbon of air and the nitrogen of air, in a product called calicum cyanamid. This discovery is filled with great promise. It virtually means that as long as limestone exists and water power is available, nitrogen-carrying plant food can be manufactured, because the great mine of nitrogen and carbon in the air will never run short.

A Great Conservation Agency

But the fertilizer industry has not confined its attention to the working up of great primary supplies of raw plant foods alone. It is one of the greatest, if not the greatest, agency of conservation now at work. Immense quantities of nitrogen and phosphoric acid are obtained from blood, tankage (waste meat), leather scrap, hoof meal, felt clippings, hair and garbage tankage. These materials, with the exception of blood and some tankage, are not quickly available as plant food. The fertilizer industry, however, has overcome this difficulty by putting these materials into the same container as ground rock. By the addition of sufficient acid the crude nitrogen carriers are quickly rendered available, and their nitrogen becomes just as serviceable as that of the salts mentioned above.

Potash formerly came from Germany. As yet no deposits as pure as that of Central Europe have been discovered. In the feverish search for a supply of potash many carriers of potash are being successfully developed, so successfully indeed that the great sledge-hammer monopoly that German potash syndicates falsely conceived themselves to wield henceforth will fall with a great deal less force on the world than it did before the war. The seaweed of the Pacific Ocean has yielded an immense quantity of potash, as have also the rocks of Western States and the briny waters of inland seas and lakes in the arid regions of this continent. Potash from waste gases of our great cement industry, too, is being conserved by a new process of collecting escaping fumes which are rich in this substance.

From all these sources, then, the fertilizer industry gathers its three essential plant foods—nitrogen, phosphoric acid and potash. Speaking more particularly of the Canadian fertilizer industry, conditions are as follows:

The Raw Materials Required

We must import a great quantity of phosphoric acid from the South-Eastern and later the Western States. No rich deposits of phosphate rock have as yet been discovered in this country. Our rich domestic deposits of mineral ores, especially those containing sulphur, make a domestic supply of sulphuric acid certain. There is a considerable supply of bones in Canada as the result of our meat production and consumption. Local industries, such as the manufacture of gas, which necessitates the coking of coal, are productive of considerable quantities of sulphate of ammonia. Our water powers and enormous limestone deposits insure a supply of synthetic ammonia, and, of course, the waste products of our cities and towns will in time be utilized as additional sources of plant food.

Considerable has appeared in the press within the last year concerning potash discoveries, especially in the western provinces of Canada. What these discoveries may develop is problematic. They at least show that we are not entirely dependent on outside sources for considerable of our potash.

The Canadian fertilizer industry involves an enormous consideration of transportation, both of raw materials from sources indicated, to fertilizer factories, and of finished product from the factories to the farmer. Increased crops must be hauled to market, and finally increased purchases which Canadian farmers are able to make as the result of more intensive methods must be transported. The Canadian fertilizer industry is, therefore, a basic factor in the general business of the Dominion. Its wares are essential. To dismiss the use of fertilizers by either casting doubt on their service or in any way blockading the progress of their use, is simply an exhibition of ignorance. Like machinery of value, fertilizers must be adapted to the condition that they are designed to help, and must be used intelligently, which means that they must be applied thoroughly and at the proper time. This last fact would warrant considerable increased activity in regard to producing more fertilizer distributing machinery on the part of farm machinery manufacturers.

The Canadian fertilizer industry is comprised of six active plants in Ontario, four in Quebec, and four in the Maritime Provinces. In these plants the processes described are carried out. Some of the leading United States fertilizer concerns are exporting their wares to this country. The industry in Canada has passed its initiative period, and is now rendering increasing service to Canadian farmers. Within the last year general fertilizer trade in Canada has increased at a remarkable rate. Canadian farmers want maximum yields, and fertilizers lead to such results.

Conditions on Which Success Depends

As was intimated, success depends to a large extent upon the intelligence with which fertilizers are used. Fertilizers are a concentrated product scientifically prepared. There is no standard formula, but there are variable formulas commonly called "brands" in the trade. Brands of fertilizers are designated by trade names and by analysis guarantees which the manufacturer records with the Dominion Department of Inland Revenue under the Fertilizer Act of 1909. A typical analysis might read a "3-9-3," which means that that particular fertilizer carries to the ton 3 per cent. ammonia, 9 per cent. phosphoric acid and 3 per cent. potash. The remainer of the 85 per cent. of the ton is made up of the combined material in which the nitrogen, phosphoric acid and potash is carried. For instance, if the nitrogen of this fertilizer comes entirely from high-grade animal tankage, the 3 per cent. carried, or 60 lbs., is carried in 600 lbs. of tankage, since tankage normally carries 10 per cent. ammonia. The remainder of the tankage is made up of animal matter.

The Dominion and Provincial Departments of Agriculture have been doing a small amount to explain the nature and use of fertilizers, but to assist in the wider spread of information regarding most improved methods of crop production the Canadian fertilizer industry is of itself maintaining a bureau. This bureau was opened in the Temple Building, Toronto, on March 1st, 1918. Its activities are to a large extent patterned after a similar bureau conducted by the American fertilizer industry, which bureau has been rendering significant service to the agriculture of our neighboring country during the last seven years.

The object of this bureau is to collect and disseminate reliable information which will lead to the increase of Canada's crop yields and the improvement of the quality of farm products; and to encourage Canadian farmers to give greater attention to soil drainage, rotation of crops, use of lime, selection of seed, conservation and wise use of stock manure, and the judicial use of fertilizers.

The bureau aims to accomplish this task by co-operating with the Dominion and Provincial Departments of Agriculture, colleges of agriculture, schools teaching agriculture, railroads, banks, the farm press, farmers' organizations and such

other institutions as are endeavoring to improve the agriculture of the Dominion.

The activities of the Canadian Bureau consist of the publishing of booklets treating with various farm problems, more especially those pertaining to the fertility of the soil, the preparation of authentic articles for the agricultural and general press, and the delivery of lectures in co-operation with other agencies—Governmental and otherwise—that are at work for the advancement of farming methods in the Dominion.

Bureau Spreads Information

The work is under the direction of the writer, who, six years ago, established and has since successfully conducted a similar campaign in the United States. He was formerly professor of agronomy at the University of Maine, and assistant professor of farm crops at Iowa College. He is a native of Ontario and a graduate of Ontario Agricultural College.

In view of the great service that the industry has rendered in the matter of increased food production, and the possibilities of its additional service during the reconstruction period, the Bureau is especially active at the present time in its efforts to spread broadcast definite information regarding soils and general farm management which will make the Canadian farmer's efforts more productive, and at the same time conserve his energies.

The fertilizer industry believes that successful and most productive agriculture is an essential factor in the progress of Canada. It does not take the stand that increase in crop production alone comprises the whole problem. Undoubtedly the farming industry of the Dominion must adopt much of the measures of trade that have tended toward success in the general business of other industries. It must develop its home markets, standardize its products and pay more intelligent attention to foreign markets. The last Crop Report of the United States Department of Agriculture is sponsor for the statement that since 1890 wheat yields of Belgium rose from 28.6 bushels per acre to 37.4 in 1914, while those of Great Britain rose from 26.4 in 1892 to 31.5 in 1913. Records show that the yield of wheat in Germany rose from 24.8 in 1893 to 35 bushels per acre in 1913. The records of these countries are cited precisely because these increases are the product of more intensive agriculture, which includes increased use of fertilizers. In 1910 Great Britain alone used over three million tons of fertilizers, Belgium over half a million and Germany over six and a half million tons.

Fertilizers Offset Cheap Labor

When one mentions intensive methods in relation to North American agriculture, the usual contention is that we cannot hope to cope with the large supply of cheap labor that formerly made such methods practicable on the European continent. To offset this seeming disadvantage, however, we must keep in mind that our large supply of labor-saving machinery to a very large extent counterbalances our comparative deficiency in actual farm labor.

The fertilizer industry is the essential factor, not only in Canada, but in world agriculture.

A Profit-Sharing Plan That Has Succeeded

System of the Boeckh Co., Limited

IN April, 1917, the Boeckh Company, Limited, of Toronto, manufacturers of brushes, etc., inaugurated a profit-sharing plan with their employees, which after nearly two years of operation has been found to work out most satisfactorily. At the outset the Boeckh Company posted the following notice where each employee could see it, and during the time the system has been in force no changes have been made:

Payments By Bonus System

"To each of such employees who have been in the employment of the Company for six months or longer, on the 30th September, 1917, a bonus fo 6 per cent. on the wages earned by such employee during the six months immediately preceding such date shall be paid on or about the 15th October, 1917, and such bonus shall be paid to each of such employees up to the 31st day of March and the 30th day of September, in each year thereafter, on the wages earned by the employee for the six months immediately preceding the said 31st day of March and the said 30th day of September respectively, but no employee shall be entitled to such bonus unless he or she has been continuously in the employment of the Company for six months or more immediately preceding the date on which the same is expressed to be payable.

"To each of such employees who have been in the employment of the Company for not less than three months, but not exceeding six months on the 30th September, 1917, a bonus of 3 per cent. on the wages earned by such employee during the period immediately preceding such date, shall be payable on or about the 15th day of October, 1917, and such bonus shall be paid to each of such employees up to the 31st day of March and the 30th day of September in each year thereafter, on the wages earned by such employee for the period in each year immediately preceding the said 31st day of March and the 30th day of September respectively, but no employee shall be entitled to such a bonus unless he or she has been continuously in the employment of the Company for three months or more immediately preceding the day on which the same is expressed to be payable.

"An employee who has been continuously in the employment of the Company for not less than three months and finds it necessary for good and sufficient reasons to discontinue his or her employment, and does so *with the consent of the Company*, shall be entitled to receive payment of the bonus accrued to him or her up to the time of leaving, provided that his or her services have been satisfactory to the Company.

"Any employee discharged by the Company for ill-conduct or for unsatisfactory work done by him or her, or for any cause whatever, shall not be entitled to receive payment of any bonus at the time or after his or her discharge.

Increased Output an Objective

"Time lost by reason of being laid off by the Company on account of slackness of business shall not be deducted in determining whether an employee has worked sufficient length of time to entitle him or her to payment of a bonus.

"The Company reserves the right to discontinue the bonus system at any time.

"The Company wishes to impress upon its employees that it is to their interest as well as the interests of the Company *to increase the output* of the factory and expects every employee in its service to work well and faithfully in the best interests of the Company and to *turn out only first-class work*."

Position and Prospects of Rubber Industry

Chief Demand for Rubber Goods During War Period was for Tires—Rubber Shoes Constituted Main Item of War Orders—Outlook for the Industry was Never Better Than it is To-day

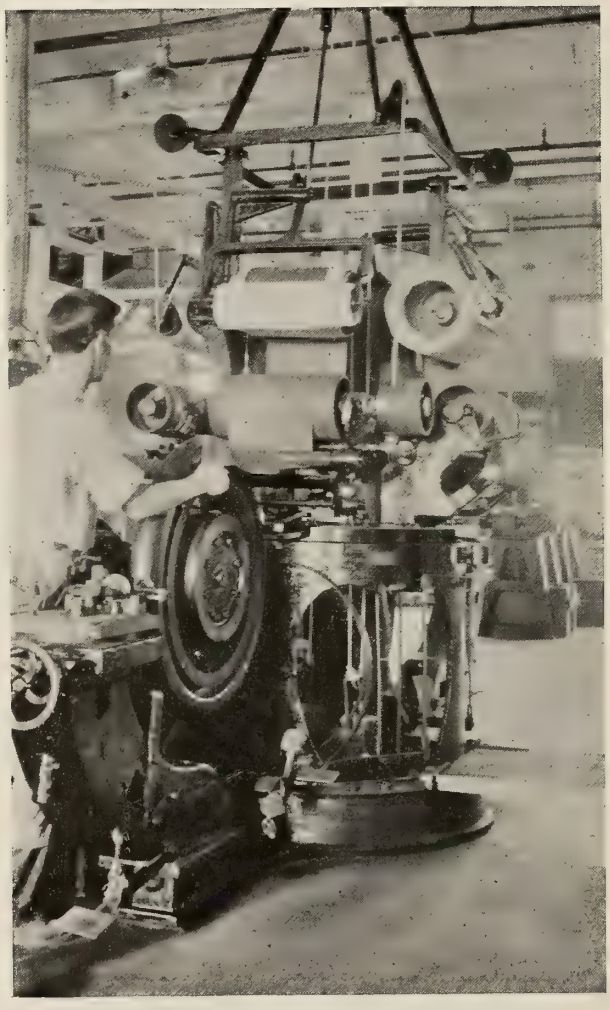
By C. H. CARLISLE

Treasurer and General Manager, The Goodyear Tire & Rubber Co. of Canada, Limited

THE rubber industry in Canada to-day finds itself in a particularly fortunate position. It is not faced with reconstruction problems of nearly so serious a nature as some other basic industries. The phenomenal growth which it has experienced of recent years, and especially during the early period of the war, gives promise of continuing during the years to come.

After the outbreak of the war in 1914, rubber companies in common with other manufacturers confronted difficulties which at any other time might have seemed well-nigh insurmountable. But the spirit of attempting the impossible was in the air, and the successful manner in which these problems were met, is only an indication of the resourcefulness of the industry, and of its latent possibilities for indefinite expansion later on when conditions will become more favorable. In the producing end there were unusual labor conditions. Many of the best men gave their services to the army and were sent overseas. Later on, the higher rate of wages obtainable in munition shops gradually enticed many more away. Other men and also other large numbers of women replaced the men who had left, and of course it was necessary to instruct them. The capacity of many of these was not high, resulting in a small production in proportion to the amount of equipment used. Yet, during the war, quality and total production were materially increased.

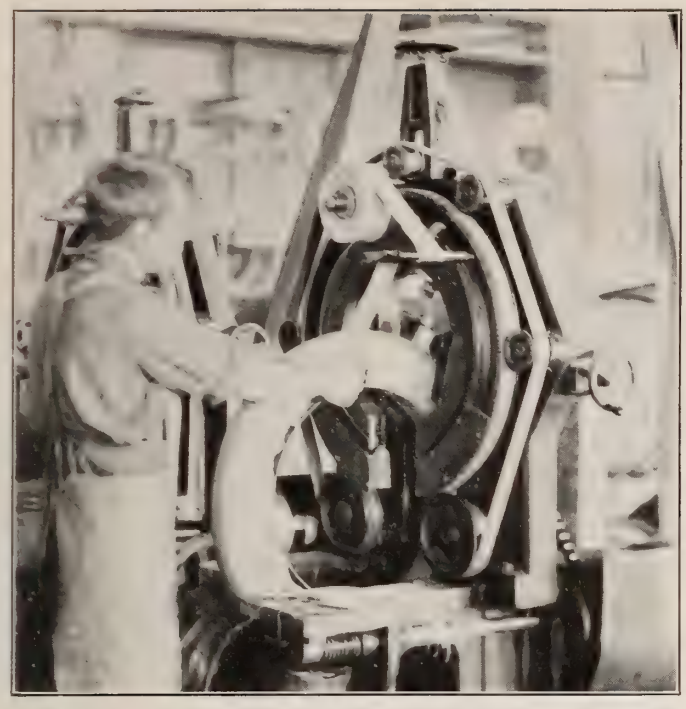
In the matter of raw materials, as the war progressed, it became increasingly difficult to obtain the quality and quantity that had been customary. Much of the long tough-fibre cotton which is used in the manufacture of rubber goods came from Egypt. Shortage of bottoms made it difficult to obtain the proper supply of this cotton. In addition, the various Governments found it necessary to use great quantities of the long fibre cotton for sheeting, hospital supplies, aeroplane wings, etc. Consequently, the price advanced heavily, and greater effort was necessary to get proper quality. The same difficulty was experienced with materials such as sulphur and the many chemicals used in the compounding of rubber. There never occurred a real shortage of rubber itself. The cost of production was increased by the higher cost of labor, of raw materials, machinery, power, etc. Cotton, which next to rubber, is the material most used in the manufacture of rubber goods, trebled in price. How the cost of chemicals soared is well known to everyone, and the cost of machinery, which had to be imported to take care of increased production, was almost prohibitive. The cost of rubber rose after the commencement of the war, but, later went to the lowest point reached for many years. The low cost can be accounted for by the fact that the blockade shut off the Central Powers from their accustomed supplies, and the shortage of shipping facilities, as well as the prohibition of the motor car for pleasure purposes in European countries, reduced the shipments to Europe to such quantities as were needed principally for war purposes. Thus the United States and Canada had access to practically the entire supply of crude rubber. The United States Government restricted importation in 1918 in order to divert shipping to war materials.



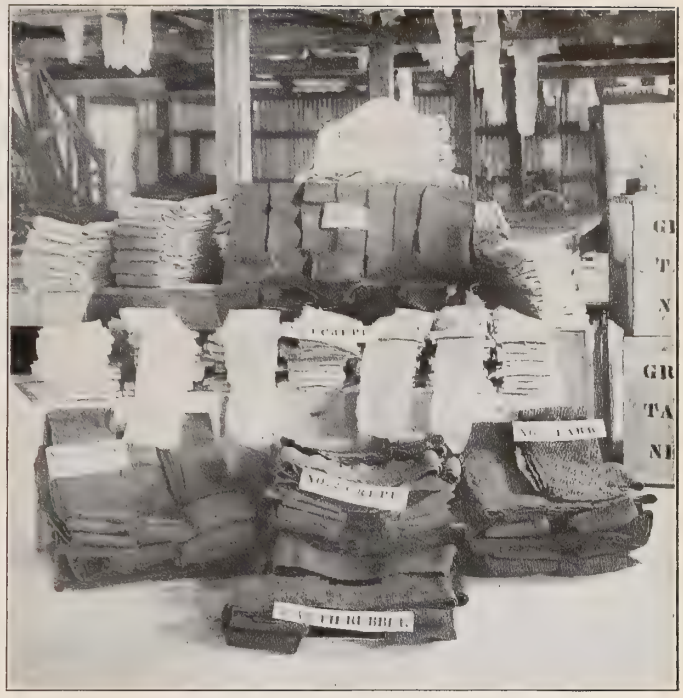
Tire-Building Machine in a Canadian Rubber Factory

At this point it is worthy of note that, in spite of the tremendous manufacturing difficulties rubber chemists and engineers had to cope with, rubber products have reached a higher state of perfection than at any time previous in the history of the industry. The cost of goods to the consumer naturally rose owing to the increased cost of production, but, actually, they received as great, if not greater, value for their money than before. For instance, in the matter of automobile tires, it is doubtful if the cost-per-mile was ever as low before the war. Similar strides have been made in the quality of other rubber products such as belting and hose. If rubber manufacturers have been able to accomplish so much in war times, with unfavorable labor, and raw material conditions, it is easy to imagine what the possibilities of the industry will be, as conditions come back to normal.

The chief demand for rubber goods during the war has been for automobile, and motor truck tires. It is estimated that nearly four times as much rubber is



Wrapping Tires
Ready for the final cure on air bags



Raw Material
Rubber ready to be shipped to a Canadian Factory

used for these articles as in the manufacture of all other lines of rubber goods. In nineteen-fifteen, nineteen-sixteen, and nineteen-seventeen there was an increased demand for motor cars. This was caused partly by the large amount of money in circulation in Canada, owing to munition works and agricultural activities, and partly by the urgent need of quick transportation to save time. Naturally the demand for tires followed the demand for automobiles. In nineteen-eighteen, motor car manufacturers were able to keep up with the demand, and Canada obtained all the cars she could buy. In nineteen-eighteen Government regulations of the steel supply and restrictions on the manufacture of cars, cut down the supply of cars. In addition to this the Canadian Government placed an embargo on the importation of high-priced cars. So, the supply was naturally reduced, and, ordinarily would have been far behind demand, but a high war-tax was imposed on all new cars purchased, with the result that the demand for cars was not so great. This affected the demand for original equipment of cars with tires, but nevertheless, the demand for tires was not much reduced, because old cars were used to their capacity, and consequently, the tires had to be renewed.

Effect of Government Restrictions

It is unfortunate that our Government saw fit to classify as non-essential, and, therefore to especially burden with taxes, an industry which has helped to contribute so much to the general business and agricultural efficiency of the nation, and which promises to be a valuable factor in the successful solution of our national reconstruction problems. Every possible encouragement should have been given to the industry, and it is to be hoped that in the future proper consideration will be given to it. Canada needs automobiles and automobile factories. It must be remembered that the automobile and rubber industries are not the only ones to be held back by the Government restrictions and taxes. There are also those industries which depend on the automobile manufacturers for part of their output. Let us suppose the Government should decide to remove the present restrictions. In 1917 there were 75,000 new cars sold in Canada. For the coming year manufacturers are figuring on a smaller demand, and, if unfavorable conditions continue, it will not be surprising if the sales for 1919 fall to 50,000 cars. Given favorable conditions and removal of taxes, the demand might equal and possibly exceed that of 1917. The production of 25,000 cars over and above the number estimated for 1919, would mean much to many manufacturers. There would then be an additional market for 50,000 plate glass squares for windshields, 50,000 or more headlight glasses, over 100,000 electric bulbs, over 100,000 square yards of leather or leather substitute for cushion covers, 100,000 wheels, 100,000 rims, over 150,000 spark plugs, 50,000 axles, 25,000 magnetos, hundreds of thousands of square yards of material for auto tops and so on through all the materials used for the construction and fitting up of automobiles. The production of iron, steel, copper, nickel, brass, lubricants, machinery, tools, gasoline, accessories, etc., would all be increased and the total contribution to employment rather extensive.

Government Orders Were Small

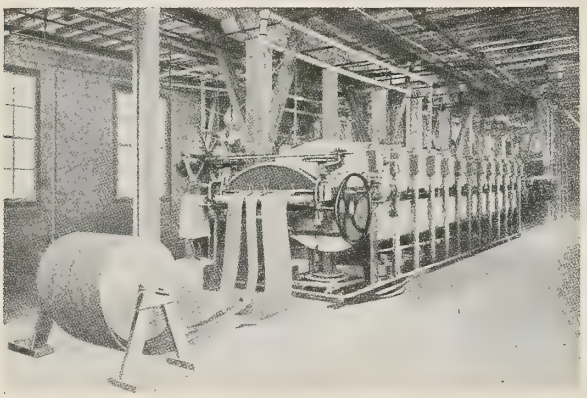
With the exception of rubber shoes, the rubber industry did not benefit to a great extent from Government orders. There were only small purchases of such materials as waterproof blankets, clothing, automobile tires, truck tires, trench hose, motorcycle and bicycle tires, and medical goods. It was not found practicable to bring supplies of raw material to this country and then ship them, in manufactured form to the battlefronts. So most of the rubber goods needed by the Empire for the prosecution of the war were manufactured on the other side of the water.

Various additions were made by rubber companies to their factories during the war, to take care of increased demands. In October, 1917, the Goodyear Tire & Rubber Company of Canada, Limited, transferred their production of pneumatic tires from Bowmanville to their new factory at New Toronto. This plant employs about 1,000 hands, has a floor space of six and a half acres, and has a payroll of about $1,000,000.00 per annum. It is devoted entirely to the

manufacture of pneumatic tires, tubes, and tire repair materials. The Gutta Percha & Rubber Company, Limited, since 1914, commenced and completed an entire new factory for the making of tires, which will greatly increase their production of automobile tires, tubes, etc. During the past two years a number of smaller firms have started in operation, among which are the K. & S. Canadian Tires, Limited; the Oak Tire & Rubber Co., Limited; Marathon Tire & Rubber Co., Limited; Vander Linde Rubber Company; Partridge Tire & Rubber Company, Limited.

Industry at the Close of the War

The fact that war orders have been small is one that is very fortunate for the industry now, because it means no involved transfer of production from war work to peace work. Those firms that have established connections in foreign lands, will find that there is a great opportunity to dispose of a large part of their product there, and so will be able to keep their plants working to capacity, during the time that Canadian trade will take to re-establish itself. Other firms that have no such connection will probably suffer for a short time, but with the increase in the production of motor cars, which should come shortly, all plants may become busy again. The field for the sale of motor cars in European countries should gradually enlarge. Car manufacturers here will be able to sell some cars there, and this in turn will affect the rubber industry, which will be called upon to supply tire equipment for those cars. Canada is to-day the second country of the world in the number of automobiles.



A Belt Curing Press

Outlook of Industry

The outlook of the industry was never better than it is to-day. In raw materials there will be an ample supply to meet all demands. Restrictions are being removed by the various Governments, and as a result supply and demand will both pick up. It is not expected that there will be any great change in prices at present.

As regards labor the situation is already becoming much better. Those who have formerly worked at munition work, etc., are hastening to get into a situation where they can expect to be permanently employed. The rubber industry offers a good field for labor. It is a comparatively new industry. The demand for skilled labor usually exceeds the supply. After a man has been trained in this work he need not be out of a position for any length of time.

There is no doubt in the minds of our business and financial men as to the future of Canada. It offers opportunities such as no other country in the world can promise. It only waits the population and enterprise of its people to develop its latent wealth. The rubber industry is due to reap a large share of this prosperity in all lines that are manufactured at present, but above all in the sale of truck and automobile tires. To-day there are about two hundred and fifty thousand cars in Canada. Conservative estimates place the number that should be in use in three years from now, at over four hundred thousand. The freight automobile is only starting to come into use in Canada. Motor trucks will be used, as they are now in the United States, on the farm, and in cities, towns and villages; with the improvement of our roads there will come the rural motor express; already we have well-established and paying inter-city express and freight motor services. The tires used in equipping motor trucks need much more rubber to make than do passenger car tires. Thus it can be readily seen what a growth there is for the rubber industry in supplying equipment for passenger and freight automobiles alone. There is also bound to be an increased demand for rubber mechanical goods, rubber heels for shoes, rubber footwear, tires for motorcycles and bicycles, etc.

Possibilities of New Lines

The possibilities of the introduction of new lines of rubber goods cannot be estimated or even guessed at. Here is a material whose inventive possibilities have hardly been tapped. Consider a few of the physical characteristics of rubber. It can be stretched as in the elastic band which holds your bundle of envelopes. It can be toughened to bear the abrasion of a five-ton truck on rocky, flinty roads. It can be hardened for telephones and other electrical equipment. Combined with cotton it drives machines requiring hundreds of horse-power; it holds, in pneumatic tires a pressure that supports several tons and yet flexes so as to be a mere cushion. Rubber manufacturers, chemists and inventors have been busy keeping up with the demands of automobiles for tires. From now on they will be able to devote their inventive genius to working out new uses for rubber. The physical, chemical and mechanical combinations that are possible in this material will be able to supply wants that man to-day may not think exist. Its possibilities far exceed those of the coal tar industry which supplies us with such a multitude of materials, color, dyes, etc. To-day the rubber industry occupies a high position among the basic industries, and yet its largest present field is less than twenty years old.

There has been a great deal of money made in the rubber business, and it is the common impression that the margin of profit must be very large. This is not especially so. The industry was new; its growth has been rapid; the greatest period of invention in history supplied it with machinery, processes and administrative methods that made for the highest efficiency; in merchandising it had the experience of other successful fields of enterprise to follow and it was able to make use of the world-wide system of distribution established by the automobile industry. The rapid growth, promising future, and satisfactory earnings on invested capital of firms well established in the industry, made it an attractive field for loans from bankers and capitalists. It had therefore plenty of loan money to draw from and was able to do a large business in proportion to common stock issued.

All these factors, together with quick turnover and efficient handling, enabled the best firms to realize a reasonable margin of profit on their products and yet make large percentages of earnings for common stock. In recent years competition has been keener than it was during the early days which means that successful and efficient management have figured very prominently in the earning of large dividends. At the present stage of the industry it is not easy to start in a small way and succeed.

The Position of the Boot and Shoe Industry

As yet No Indication that Prices of Raw Material Will Recede for a Considerable Time to Come—Wages Will Probably be Maintained for Some Time—The World is Bare of Leather and Leather Products and a Large Business in Export Lines May be Obtained

By GEORGE A. SLATER
President, G. A. Slater, Limited

MANUFACTURING conditions in the boot and shoe industry during the war period, to say at least were very trying, but probably not more so than they were in any other industry; yet it is only natural to magnify our particular burdens, and in the retrospect the difficulties seem well-nigh insurmountable. Commencing with six months of stagnation following the outbreak of hostilities, the market suddenly revived, and from then on it was a question of securing raw material. The quietness which prevailed previously in the retail and manufacturing divisions naturally extended to the tanners, and the latter were hardly prepared to handle the demand. Military requirements claimed priority, and the tanners felt it compulsory to devote a large share of their efforts to leathers suitable, with the result that civilian needs were supplied only as the manufacturer was able to secure the leather. Supplementary trouble was caused by the necessity for importation of so many other articles used in the manufacture of shoes, as Canada has always been dependent for most of these on the United States and other countries which shipped through the United States. The supply of skilled labor so necessary to the production of shoes, and none too plentiful even in normal times, also suffered depletion as the war period progressed, and during 1917 and the present year production was reduced to a minimum.

Prices could do nothing but advance with the higher cost of manufacture, and in spite of the exercise of every economy prices continued to advance until to-day they stand about 100 per cent. above pre-war quotations. This increase has been forced on the shoe manufacturer, not only by the ordinary increases in the costs of labor and materials, but also by the demand for styles which seemed wholly out of accord with war-time economy.

Embargoes and Restrictions Enforced

In considering the state of the market during the war we need only concern ourselves with the domestic end, because, while opportunities were offered for export to England and the other colonies, no sooner did the manufacturers become interested to the extent of undertaking initial contracts than embargoes and restrictions were proclaimed which precluded the possibility of developing outstide the country to any extent. It was indeed a brave man who would, in the face of such difficulties, use material and labor for export trade; and yet some of the makers did so, only to have the goods thrown back on their hands. Of course lack of incentive to look for fresh fields was furnished by the extraordinary demand from the trade at home, wherein price seemed a secondary consideration. From 1915 on the orders for military boots considerably reduced the producing capacity of many factories, and, in fact, had practically the same effect on all factories, because employees desirous of having continuous employment were naturally drawn to the plants which were being kept busy with Government business.

In the summer of 1918 a feeling became prevalent among the trade that peace negotiations were not far distant, and when the buying season for spring, 1919, opened in September, buying, except in the extreme west, seemed restrained. Even the manufacturers for months past have been buying only as needed, partly from inclination and partly because leather dealers had not the supply available for heavy delivery. This condition is probably more favorable than otherwise, because the tendency will no doubt be to conserve stocks rather than to sacrifice; this should serve to stabilize the situation. Most factories are busy and are having difficulty even now producing, because there has been no marked recovery to pre-war producing capacity.

An Improvement by Next Fall

Inasmuch as the shoe business is conducted largely on a seasonable basis, spring and fall, with the placing of orders generally six months in advance, it is not unreasonable to presuppose a recovery to a more steady frame of mind among all branches of the industry by the time samples are produced for next fall; but in the meantime it would be well to remind buyers that acceptance of orders for spring delivery was not lightly undertaken by manufacturers, and to request cancellation of orders now not only works a hardship on the latter, but furnishes meat for consideration which may seriously detract from the goodwill which has marked the relations between manufacturer and dealer in the past. There has also arisen a tendency to return goods on some slight pretext, when it is manifest that the reason is simply a desire to avoid acceptance of goods for which payment must be made.

The big danger to be faced and overcome is lack of confidence. The situation calls for optimism; yet many are showing the white feather. I was surprised, in conversation with one of the biggest buyers in the United States, to learn that he anticipated lower prices and was doing no buying because of that reason. When I enquired why he believed lower prices would rule, he was unable to give any reasonable explanation. There is as yet no indication that prices of raw material will recede for a considerable time to come. Special offerings may be made, but these will be caused by conditions which do not apply to the market as a whole. Wages in shoe factories and in the plants supplying the former will probably be maintained for some time. Foreign Governments are in the market for shoes for civilian use, and there seems every evidence of ample business for the factories, even though regular buying may be curtailed. When buying becomes more free the demand will be so marked that the supply will be exceeded and the competition for that supply will probably inflate prices. Then, again, must be taken into consideration the new attitude toward footwear. Women to-day pay more attention to that part of their wearing apparel, and even men realize the importance of having their feet properly clad.

The possibilities for export under normal conditions are worthy of investigation. A careful survey of the situation develops the fact that the world is bare of leather and leather products. We may say that Europe is almost barefoot, and this country has not only got to help feed many of the European nations for a time, but we have got to help clothe

them. Shoes are one of the most essential articles of apparel, and people as a whole have to have footwear when they manage to get along with a few new clothes. Assuming that there will be some way worked out by which these countries can pay for the goods they need, and if our manufacturers will consolidate their lines and concentrate their efforts on an export trade, it would seem as if a large business in export trade may be obtained.

That prices may eventually come down is not unlikely, but such recession is not likely to occur for a year or more, and then will be subject to external conditions. The shoe industry, dependent as it is on leather as the main material used in its products, finds itself affected as to supply and costs on the cattle supply. Leather is simply a by-product, over which the shoe industry and the tanner have no control, so that despite a lower wage scale and even reduced costs of other materials the price of leather may rule high for years, and may show increases because there is every indication of a sadly depleted cattle supply, which may not be increased for years to come. The proper preparation of leather takes months, and authorities seem unanimous in their opinion that higher prices of leather can only be prevented by pursuing a sane, non-speculative merchandizing and manufacturing policy.

Effect of the War on Styles

A great many opinions have been expressed with regard to the trend of styles, and it is interesting to note the influence exercised by those who have returned from the front. There is a steadily growing demand for *solid, substantial* English types, and this applies not only to men's shoes, but to those for women as well. So it is reasonably assumed that we shall see a great many brogues and broad-toed shoes worn from now on. Experience has proven that when extreme types are demanded there is a pronounced tendency to opposites as well; from this we are likely to see many very light shoes worn, but styles run in cycles, and whatever may be in vogue during the next few months will be superseded by new models necessary to satisfy the public craving for "something different." The only regrettable feature of this is the additional cost involved, caused by the necessity for manufacturers to conform with fickle taste, and the efforts put forth by many manufacturers during the past four years to economize by standardizing and reducing lines will, in all probability, go for naught.

Co-operation is to be Desired

The proper development of our industry seems dependent on the extent to which its members will co-operate. While in the past the manufacturing capacity has been in excess of the demand, the growth of our population and the attendant increased consumption of footwear should, in the course of time, overtake the former, and if the manufacturers, bearing this in mind, will within reason confine their efforts to the respective classes of boots and shoes which they are best able to make, then we shall see production conducted along economical and amicable lines working to the ultimate good of the consumer. Concentrated effort should be the keynote; let us produce fewer lines and more pairs in each line, and let the dealer, whose influence is by no means small, extend his very best efforts in co-operation with the manufacturer. How much easier it will be to buy if the lines of demarcation between the various grades of footwear are well defined. Bigger plants and better plants will come with increased demand, for with the return of our men from the battle-front production in all other industries will be stimulated, and with immigration to follow our domestic needs should surely find fulfilment in the plants which have helped to make these needs possible.

Scene at the Lyons Fair



Illustration by courtesy, Commercial Intelligence Branch, Department of Trade and Commerce, Ottawa.

FOR many years before the war the famous Leipsig Fair annually attracted buyers from all parts of the world. France hopes that her Lyons Fair will now attract a much larger number of visitors than the Leipsig Fair. The success so far achieved, in spite of all the difficulties of war time, makes it seem probable that France will not be disappointed. The Fair opens this year on March 1 and continues for two weeks.

Conditions in the Canadian Auto Industry

Demand for Cars at Present Limited on Account of Hesitation on the Part of the Public—Various Factors Causing this Hesitation—Manufacturers Proceeding Along Conservative Lines, but Expect Normal Conditions within Three or Four Months

By G. M. McGREGOR

Vice-President and Treasurer, The Ford Motor Co. of Canada, Limited

THE effect of the war upon the automobile industry, as we look back at this date, was almost, you might say, beneficial. At the time the war broke out, general conditions throughout Western Canada and other portions of Canada, were not any too reassuring, and for some months after the war broke out there was a decided decrease in our output, everybody hesitating, feeling that the financial conditions were such that there would be a very serious effect upon this, as well as every other industry. However, after the war had continued three or four months, manufacturers began to realize that increased prices of food products and other materials, the undertaking of huge contracts for war supplies in Canada and other conditions of that kind brought a lot of money into the country and increased the purchasing power of the country, so that in a short space of time we were compelled to materially increase our output.

For instance, in 1914 we manufactured approximately 16,000 cars; in 1915, 25,000; in 1916, 30,000; in 1917, 50,000, and in 1918, 47,000. These are approximately round figures and of course, include our export demand as well as domestic.

For the first two, or possibly three years of the war, we had no difficulty as regards supplies or labor. We did, however, have a very increased demand each year and we were able to meet this increased demand by securing labor even under some difficulty—and material. We did have a great deal of difficulty in meeting the demand on account of the congestion due to transportation conditions, but the fact that we had assembling plants throughout Canada permitted us to ship our stuff in knocked-down condition using a great many fewer cars than we would have used had we shipped our material set up, and in that way we were enabled to overcome these conditions.

Values Were Increased

The effect of the war, however, had a material disadvantage in increased prices. The first year of the war we were able to reduce our prices on account of the increased quantities, but later, as materials began to increase in price, wages advance, and other conditions of that kind, it was necessary for us to increase values. The productive capacity of our plant was increased materially during the war, as per figures which have been shown in the foregoing. We did not, however, make any marked increase in our plant equipment, but we have taken on additional manufacturing during the period making many more parts than we did at the time the war broke out, so at the present time the car which we manufacture is made almost entirely in Canada, except for those special steels which we use in the construction of our car and which have to be imported.

In addition to that, accessory plants have sprung up around us so that practically all of our parts and accessories are now made in this country.

During the past four months there has been a disposition upon the part of this plant and others, to get together as much material as we possibly could in view of the attitude of the War Trade Boards, both in Canada and the United States, so as to permit us to continue manufacturing at a very much reduced rate. During the last three or four months it has been our desire to reduce our plants and production so it was our intention to produce not more than 25,000 or 30,000 cars during the 1919 season, and even yet there is no disposition to increase these quantities. We have a considerable amount of material on hand for this particular purpose, all of which has been purchased at high values and there is no possibility of reduction in prices until these inventories have been materially reduced. As a matter of fact, if we were to go into the market to-day to procure material to take the place of the material which we have on hand, we would not benefit much by reduction in prices, as there have not been any material reductions of any kind on any purchases which could be made.

Limited Demand for Cars

The demand for cars at present is limited, due to hesitation on the part of the public. There are many factors which have to do with this reduction in demand. Firstly, everybody figures there should be an immediate drop in prices, but as indicated in the foregoing until there is a material drop in the price of material which we can purchase, there can be no drop in the price of the car. Secondly, the public are expecting there will be a reduction in the ten per cent. tax which the Government has imposed upon the manufacturer's price of motor cars. This is a very convenient tax for the Government, as the cost of collection of this particular tax is very slight, but nevertheless it seems like singling out a particular industry and taxing it, whereas the automobile manufacturers rather resent that they have been singled out and taxed in this particular way, even though it is a convenient way for the Government to tax and to collect. The public and the agent as well, at the present time rather has the idea that this tax will be abolished or reduced, and for that reason it is having a very serious effect upon the demand for cars during the winter months, as it means that the agent must take these cars and pay the tax and hold them in stock until the spring season opens, which makes a much heavier investment for him. Comparing the investment with that of previous seasons, the agent not only has to pay this tax but he has to pay a much higher price for his cars than in previous seasons, and for that reason his investment is very much greater than in any other season and in that way has a serious effect upon the demand at the present time.

The outlook for the industry we would consider satisfactory, although not glowing by any manner or means. In the first place, there is a tendency on the part of the purchasing public not only in connection with automobiles but every other line, to purchase conservatively for requirements. The supply of materials is not easy and in some lines there is difficulty getting supplies for our requirements even at the present time. Labor and wages remain about as they were at the close of the war and we see no possibility of very much reduction. In fact there is no possibility of a reduction in prices until there is a change in the price of material and a change in the price of labor, and we rather hesitate to figure

that there will be much change in either of these conditions for some considerable time.

The market for our goods, both domestic and export, we consider good, but on account of the hesitation of the public, the manufacturer is going very conservatively, and this not only applies to this particular industry but to all automobile industries both in Canada and the United States. There is the same tendency in both countries—although more marked in this country probably than in the States. In the United States, for instance, on account of the curtailment of the industry, agents in that country have had very few goods to sell since April or May, 1918, so there is a considerable demand due to lack of supplies for that period.

The probable trend of values will not change very materially for some months to come. We consider, however, that the industry will expand and that these conditions will become normal in the course of three or four months, and we are rather incined to feel that by the first of March, or possibly by the first of April, there will be a marked demand for cars and a shortage of supplies. In view of the fact that the agents have not taken goods for the last three months and are not figuring to take any great quantities for the next three months, it has reacted upon the manufacturer to such an extent that the manufacturer is curtailing his production according to the demand from the agent. In this business it is necessary for the agent to stock his cars from November first to May first, and then when the market opens his stock is cleaned out in a very short space of time, but this year, with the agents not stocking cars, it means when the demand comes, the agent not having cars on hand, will make a demand upon the manufacturer in large quantities in a short space of time and the manufacturer will not be ready to meet the demand, consequently to our mind there will be a shortage of cars not only here but in the United States, so that a great many customers will be disappointed at not being able to secure delivery when cars are wanted.

Regarding motor truck industry—we are making a one-ton truck which has a fair demand. The demand, however, for trucks in Canada is limited when compared with the demand in the States, because the truck demand is largely confined to cities, although with the sized trucks which we market there is more or less demand in the rural districts. We have only been in the production of trucks for one year and could hardly indicate what the demand for trucks is in Canada, but up to date the demand with us has been fairly satisfactory, although not up to expectations.

We feel every confidence in the future of this industry, although the demand at the present time is marked by a great deal of hesitation on the part of the public and the agent, but we feel in the course of two or three months these conditions will materially improve, when there will be a possibility of the industry coming back to something like normal conditions.

We cannot say that the war has had a serious effect upon our business, because we have made a marked increase in our output during the period of the war, probably not greater than we would have had if there had been no war, but at the same time the purchasing power of the country has increased so materially on account of the immense expenditure of money in the country due to increased values, due to the war, that we feel that possibly the industry, aside from the heavy tax, has made a marked improvement during the period of the war. These conditions, while satisfactory, are regrettable in a way—to feel that any industries should improve under war conditions. Nevertheless this is an effect which we cannot deny in view of the figures indicated.

Outlook for Canadian Cotton Manufacturers

By E. A. ROBERTSON
Sales Manager, Montreal Cottons, Limited

GENERALLY speaking, the war has had a very beneficial effect upon the cotton industry, with resultant placing of the industry on a plane hitherto not thought of, and from which a policy for the future will develop, which will place it in a stronger position than ever in its relation to its principal market, the Canadian trade. The experience of supplying Government requirements in various lines has brought to light more effectively than possibly any other means could have done, both the possibilities and advantages of concentration and standardization of product, the consequences of which cannot but prove of great benefit to mills and to the trade alike.

The supply of raw cotton has not interfered with production, but labor shortage, scarcity of supplies and Government restrictions on such—drugs, chemicals, etc.,—have at different periods during the past four years had a very material effect. To-day, however, the supply of labor is very much improved; and there is also an improvement in the efficiency of labor, or quality of product. The position as regards mill supplies will also improve, but the process as a whole most likely will be gradual, and will take some months to return to anything approaching normal conditions.

Goods values have about trebled as compared with pre-war prices, due to the phenomenal advances in raw cotton, labor and every item of supply, from coal to nails.

It is not very much known, perhaps, in the trade, that some grades of cotton have sold over eighty cents per pound, and mill supplies of all kinds to-day represent a very high average cost.

War conditions, of course, have been the causes of most of the difficulties of the past few years, principally high costs and difficulty of supply, and the absence of war, it is reasonable to expect, will have an opposite tendency, but, expressing a purely personal opinion, the return to anything approaching pre-war conditions will be slow and have very little effect, so far as actual business is conecrned, for at least six months.

Mill stocks are absolutely depleted, and heavy bookings are in hand, contracts in many cases running throughout 1919, the principal reason why this condition is not more general being the mills' incapacity to handle the business.

Additions to plant and improvement in equipment have been carried on incommensurate with the enormous extra demand for goods, perhaps; a demand which was due, in a great degree, to the automatic closing of other, customary markets of supply, but the wisdom of the policy which has and is being carried out, and its full effect, will be evidenced by the more efficient execution of Canadian civilian requirements than has obtained in the past.

Business immediately is in *statu quo*, naturally and thankfully naturally, because of the condition of world affairs at the moment, thankfully, because it provides a much-needed opportunity to all concerned to get decks cleared for the return to peace conditions.

It is interesting, and incidentally reflects credit upon the Canadian business man, especially in the light of so much evidence to the contrary across the line, to know that cancellations of contracts or requests to cancel with Canadian mills have amounted to practically nothing.

The outlook for the future is largely problematical, but is looked confidently to by all branches of the trade.

Maritime Province Industry in War and Peace

For the Past Four Years, Maritime Canada has been Industrially a Very Busy Spot—Nearly all Industries Have Been Worked to Full Capacity — The Outlook for the Future Appears Very Bright

By W. S. FISHER

Chairman, Maritime Branch, C.M.A.

Assisted by R. E. Armstrong, Secretary, St John Board of Trade

THE Maritime Provinces have emerged from the war with an added lustre to their reputation. During the four years of world strife these provinces have amply demonstrated their potentialities as factors in the great scheme of national affairs.

In the early stages of the war game, when Canada was playing a lone hand on this side of the Atlanitc—and playing it well, too—and when open ports were sorely required during the winter months to handle troops, foodstuffs and needed war supplies for overseas, it was to the ports in the Maritime Provinces that the eyes of the empire had to turn. Without these ports, not a soldier, nor a shell, nor any war material, whatsoever, could have been shipped across the Atlantic from Canada during the winter months of the first three years of war, when navigation was closed on the St. Lawrence. Possessing these ports, however, thousands upon thousands of troops and millions upon millions of dollars worth of war supplies were rapidly and safely forwarded through St. John and Halifax during the period of United States neutrality, as well as afterward. When considering what Canada had done to win the war, this is one of the great outstanding facts that should not be forgotten. What the ports of the Maritime Provinces accomplished during the perriod of war strife in overseas shipments of war material can be duplicated in the piping times of peace if the rest of Canada will stand behind them as loyally as during the four anxious years that have just closed.

Ships and Shipbuilding

When the submarine menace imperilled the safety of troop ships and merchant vessels, and when ports of examination and convoy station became a necessity for both British and United States commerce, the Maritime Provinces ports were again called into requisition, and played most important roles in this feature of the titanic struggle. Halifax, unfortunately, was called upon to pay the price in the terrible explosion of December 6th, 1917, but she speedily recovered from this appalling disaster as far as her port facilities were concerned and continued to play the game nobly to the end.

When the ships were needed to take the place of those that had been sunk by the enemy, the shipbuilders of the Maritime Provinces lent loyal assistance toward that end. New Glasgow lead off with the first steel ships, but contributions in wooden ships came from Yarmouth, Digby, Lunenburg, Lockport, Shelburne, Parrsboro, St. John, Alma, St. Martin's, Moss Glen, Harvey, and many other points. In most instances, men also to man these new vessels were drawn from the Maritime Provinces.

When the world supply of foods became low, and when increased production became the watchword from one end of Canada to the other, the value of the sea fisheries of the Maritime Provinces was speedily recognized and a most notable part they played in the food production campaign. The success that was met with in this respect has demonstrated the great value of our fisheries as a national asset and has emphasized the importance of their development along more modern scientific lines. A recognition of this fact has led to the formation of an association on the part of the fish packers of the Maritime Provinces to make a thorough scientific research of our fishery resources. This research will be carried on under the direction of Prof. McCallum, Chairman of the Honorary Advisory Council for Scientific and Industrial Research.

Fuel and Lumber

Likewise, when a shortage of fuel was threatened, and when the United States authorities found it necessary to economize in the export of anthracite, the coal fields of Nova Scotia and New Brunswick answered the call for increased fuel production. The Cape Breton mines were worked to the limit of their labor capacity, and so also were the coal deposits of Queens County in New Brunswick. Recognition of the fact that our Maritime bituminous coal fields must continue to meet this fuel emergency for a long time to come has led to greatly increased development in this department. This is true of both Nova Scotia and New Brunswick. In the latter province, several new companies have entered upon coal development in Queens and Kent Counties.

Lumber was another necessity of the war that was met to a great extent by Maritime saw-mills.

From an industrial standpoint, Maritime Canada has been a very busy spot during the past four years. At St. John, Fredericton, Chatham, Moncton, Amherst, New Glasgow, Halifax, Sydney and other points, plants have been actively employed in the manufacture of shells or other war material. The industries of peace received an impetus from war demands, and nearly all of these industries have been operated to full capacity. This has been true of the pulp and saw mills, sugar refineries, cotton factories, edge tool plants, and many others.

Readjustment After War

No difficulties are apprehended in the readjustment of shell factories to the manufacture of peace products, and it is the general impression that the demands of a hungry and battered world will call for all the products that our farms, factories and mills can supply. That there will be a tremendous demand for labor is generally recognized. That demand is very insistent even now, but the scarcity of tonnage makes it difficult to grapple with the situation. In many other lines of manufactures the outlook for expansion is most satisfactory. That the industries of the Maritime Provinces will perform a large share in the increased production that is necessary goes without saying.

Of course, there are disturbing problems which must be adjusted, not the least of these being the re-establishment of the soldier in civil life. There is the problem of transportation which is gradually though very slowly being solved.

There is the labor problem, which is closely linked up with that of the soldier, and which has given rise to much unrest and uneasiness of late. These problems will require all the wisdom, tact and patience that can be brought to bear upon them. Labor is inclined to look askance at capital, and capital is a little suspicious of labor, but both are necessary to each other and when a better understanding has been reached—as reached it must be before long—the existing unrest and suspicion will speedily give place to a better feeling. The advent of women into industrial pursuits that were regarded as out of her realm prior to the war, adds a new difficulty to the labor situation, but this difficulty may turn out to be largely imaginary.

Speaking generally, the outlook for the future, so far as the Maritime Provinces is concerned, appears very bright. Their natural resources of coal, lime, gypsum, iron, lumber, fish, fruit and agriculture exhibit a wonderful variety and combination. In the development of these resources immense possibilities are opened up both for established and new industries.

Perhaps, the greatest natural asset that the Maritime Provinces possess is found in their commodious ocean ports, which are the entire year open for the traffic of the world. These ports are connected by two transcontinental lines of railway with every city and town of any importance in Canada from the Atlantic to the Pacific, and they are so favorably situated with relation to the outside world as to justify the expectation that in the years to come they will form still more valuable media through which the export and import trade of Canada must pass, being a national asset of the highest value, their development, along comprehensive lines, is a task that the nation should apply itself to at once, otherwise foreign ports may reap the benefits which of right belong to the ports and people of Canada.

The favorable geographical position of these ports, connected as they are by rail with inland points and by steamship lines already running to various parts of the world, provide for the easy assembling of raw materials and for the rapid distribution of our finished products to all markets abroad. As time goes on, and new lines of steamships are added (and they certainly will be) the position of the Maritime Provinces in this respect will be greatly strengthened.

Added to these important advantages we have a moderate and healthful climate, attractive scenic surroundings, an intelligent, industrious people, good coastal connection and industries already firmly established along many lines. Possessing these advantages, natural and acquired, there is no section in Canada that offers so excellent an opportunity for the establishment of those industries which cater to export and home trade. Our own people, in many instances, have not fully realized the strength of our Maritime position, and as for the rest of Canada, up to within a few years these Provinces by the sea were a terra incognita to them. The movements of troops from far western points through the Maritime ports during the war period has tended to dissipate much of the ignorance and indifference that have hitherto prevailed on the part of western Canadians and has led to a better appreciation of both the Maritime Provinces and their peoples.

The tendency which has manifested itself in recent years toward a legislative union of the Maritime Provinces is an indication of a growing feeling in favor of closer co-operation on the part of the Maritime people so as to press their manifold advantages upon the attention of the public at large, to secure a fuller recognition of their great natural resources, and at the same time to protect them in their position as an integral part of the great Dominion.

In conclusion, bright as the prospect may seem to be for the Maritimes, the full fruition of our ambitions and aspirations will not be attained without hard and incessant labor, without a constant pressing of our advantages upon the public, without a careful study of our boundless natural wealth and an equally careful application of this wealth to the common needs. We must get away from the narrow sectional feeling that has so long governed our movements, and pull together more than we have been doing. Moved by this spirit of broad Canadianism, the reconstruction period upon which we have just entered should be one fraught with the most important consequence not only to the Maritime Provinces themselves but to all Canada.



Among the Docks at Halifax

The output of deep-sea vessels from British Columbia yards during 1918 reached the splendid amount of 155,600 dead-weight tons, and forty-two ships were launched. Of these Vancouver contributed six steel steamers and six wooden steamers, while North Vancouver sent in two steel steamers, six wooden steamers and six wooden schooners. The balance of the fleet was built at Victoria (nine wooden steamers), New Westminster four wooden steamers, and Coquitlam three wooden steamers.

The biggest vessels launched were the six 8,800-tonners from the Coughlan yard—the Alaska, War Camp, War Noble, War Charger, War Chief, and War Convoy. Next came the two 4,700-tonners—War Power, and War Storm—built by the Wallace yard. There were twenty-seven wooden steamers of 2,800 dead-weight tons each built for the Imperial Munitions Board, six auxiliary schooners of 2,500 dead-weight tons, constructed by Lyalls, and one 2,800 wooden steamer for Greek owners built at Coquitlam.

Maritime Fishing Industry and Its Needs

Great Potentialities are Possessed by this Industry but it is Not Receiving the Attention it Deserves from the Federal Authorities—More Practical Information is Needed and a System of Education of Fishermen Should be devised

By W. F. TIDMARSH

Portland Packing Co., Charlottetown, P.E.I.

THE coast waters of the Maritime Provinces of Canada are probably the most prolific in piscatorial life of any waters in the world. In these waters are found in abundance all the varieties of fish life indigenous to northern latitudes. This is particularly true of the Gulf of St. Lawrence. Ichthyological research has revealed the fact that aquatic animal life thrives best in inland seas, and in Canada's great inland sea may be found in large quantities, easy to obtain, all the varieties of fish life that inhabit the Atlantic coast waters of Canada. Whether or not this great natural maritime asset has been utilized to the best advantage we shall discuss later in this article.

The value of all kinds of fish taken and cured in the Maritime Provinces in 1916-17 was $17,093,940, apportioned between the provinces as follows:

Nova Scotia	$10,092,902
New Brunswick	5,656,859
P. E. Island	1,344,179

Of the different classifications, lobsters, canned and in the shell, take first place. Following is the value of this product, by provinces:

Nova Scotia	$3,210,520
New Brunswick	1,048,940
P. E. Island	976,520

The lobster industry has been very seriously affected by the war. Everything that enters into the catching and canning of lobsters has more than doubled in price since 1914, while the value of the canned product was, during the months of May and June of the present year, less than it was four years ago. That the industry has survived these conditions demonstrates that in normal times it yielded to the producer larger returns than other branches of the fishing industry, nor is this difficult to understand when one realizes that Canada has practically the monopoly of the lobster-canning industry of the world, and in normal times the market for the product is world-wide. That canned lobsters have fallen in value during the war may be in part due to the restriction of the market and transportation difficulties, but that is not the whole cause. It is chiefly to the temerity of the dealers themselves, who established their prices from time to time below the value of the article, when compared with other products of a like nature. With caviar, put up in half pound tins, selling in New York in 1915-16 at $15.00 per dozen, lobster in the same style package should have commanded more than $2.00 per dozen, especially when one considers that lobsters have been known as a luxury and sought after by epicures in all ages—centuries before caviar was known.

Next in importance are the "ground fish." In this category we shall include cod, hake, cusk, pollock and haddock. In 1916-17 the value of these fisheries as tabulated in the returns of the Fishery Department, was, by provinces, as follows:

Nova Scotia	$4,992,830
New Brunswick	848,760
Prince Edward Island	200,888
	$6,042,478

The sardine industry is reaching considerable proportions. The value of this product is given at $1,481,085, but we are away behind Norway in this product. In 1916-17 the value of the raw material alone, consisting of bristling, small herring and blanding (the latter a mixture of small herring and bristling) delivered at the canneries at Stavanger alone was $1,786,493. With our extensive herring fishery we should produce more than $1,481,085 worth of sardines. We may say, in passing, that the term "sardine" is a commercial term, and does not indicate the exact kind of fish the sealed package contains. The term originated in Sardinia, in the Mediterranean, where the article was first produced. The sardine of Sardinia is the young pilchard of the North Sea. The Norwegian sardine is either small herring or bristling. The term so far has been applied to the several members of the herring family put up in oil, in hermetically sealed tins. The statement made by Mr. Connors at the meeting of the Maritime Branch of the C.M.A., recently held at Amherst, that Canadian sardines were not permitted entry into England under that name on account of the fish being herring, did not receive from the convention the attention it deserved. If Norwegian herring and bristling pass under the name of sardines, it is difficult to understand why Canadian herring put up in exactly the same way, should not be treated in the same manner.

The remainder of the value of the Maritime Province fisheries, $4,334,397, is made up of various kinds of fish, such as herring, mackerel, etc.

More Technical Knowledge Needed

That the Maritime fisheries have a far greater potential value is very apparent to those who have given the matter even casual consideration, and why the Federal Government has neglected to give this important industry more attention passes all understanding. If we are to successfully develop our potential fishing resources we should have more technical and practical knowledge than we possess at the present time. The biological station is not giving us the information we require. The number of bones in a mackerel shark; the antics of a lobster in captivity, and other kindred things, while no doubt very interesting and useful from a strictly scientific view-point, do not convey the practical knowledge essential to the development of our fishing resources. The scientific type of mind has its limitations, and scientific research, to be useful for industrial purposes, must be supplemented by instruction given by experts who, by actual experience, have tested the applicability of its findings to particular local conditions.

What we require to know mostly at the present time is how to prevent deterioration in our fish products, through chemical and bacterial agencies, and this knowledge can be obtained only by employing experts in these lines and providing them with laboratories, properly equipped to carry on their investigations.

We also require to know how to convert into merchantable products the by-products of our fisheries. Codfish roe constitutes an important item in the Norwegian fisheries. In

1916, 1,640,000 gallons of codfish roe were procured in Norway. About half of this was bought by the canneries, and the roe not utilized for canning purposes was taken over by foreign purchasers at maximum prices, which are about $18.65 per barrel. This product is not utilized in the Canadian fisheries.

Then there is cod oil. This is extracted by our fishermen at the present time by the natural fermentation of the liver, "rotted out." The oil produced by his method is rancid and of inferior quality and its commercial value is very materially reduced. This is an economic loss to which a remedy should be speedily applied. The Government of Norway, long ago, instructed their fishing population in the process of extracting oil by scientific methods, and more recently the Government of Newfoundland has followed along the same lines. Both cases have resulted in a great economic saving. These are only two instances of economic waste. They could be multiplied many times.

Energetic action should be taken to prevent the almost criminal waste that is now going on in connection with our Canadian fisheries. We should proceed without delay to obtain information that will enable us to properly utilize the by-products of fish, now almost universally wasted. We have reached a period when this great economic waste should cease, and must cease, if we are to compete successfully with nations and communities that apply scientific methods to industry and commerce.

We possess potentially the greatest fisheries in the world, yet have no accurate information as to the kinds of fish that inhabit our coast waters. We should know, if development is to proceed satisfactorily, not only the kinds of fish that frequent our waters, but their migratory courses, the places where they centre in the largest quantities, the times when they are in the best condition for food, and improved methods of catching, curing and preparing the fish for market. By using the cruisers of the Fishery Protection Service for this purpose, the desired information could be obtained with little or no expense to the Government.

Vocational Education Needed

The Federal Government should lose no time in inaugurating a system of vocational education for fishermen. Large sums of money have been appropriated by the Government for agricultural education. Proper technical instructors have been provided to disseminate this knowledge to the agricultural community. That the knowledge thus imparted has produced good results is amply demonstrated by the increase in the crops from year to year. Two blades of grass are now growing where formerly only one grew. Education has doubled the harvest of the land; it would double many times the harvest of the sea. Organized education in Canada is now being extended to serve nearly all occupations. Why the beneficent influences of this system have not been extended to the fishing interests and the fishermen it is difficult to understand.

In fishing education we can learn a good deal from other countries. Scotland, in 1750, imported instructors from Norway to instruct her fishermen. The Netherlands to-day have eight schools for fishermen, and two school-ships. The classes are attended by young lads from 10 to 12 years of age. They are instructed by men who have had years of experience at their job. France has eight special schools for fishermen and courses on fisheries and fish culture in 400 elementary schools. England has 15 schools for fishermen, whose courses are chiefly directed to provide instruction in navigation and in the handling of the gear of fishing boats. The institution at Peel, near Barrow-on-Furness, provides special short courses for selected fishermen. Each course lasts for a fortnight and the Education Committee of the County Council grants $25 to each fisherman who attends. Such men, when they go back to their localities, become centres of influence and enlightenment among their fellows. A somewhat similar course is provided in Scotland in one or two centres. Selected fishermen attend such courses for one week only. They receive a scholarship, sufficient to pay their travelling expenses, and $5.00. They, also, exercise a very direct and helpful influence in the fishing community when they return. Japan leads all other countries in the provision it has made for the training of this class of its people. It has two central institutions attended by some 500-600 students annually. Each takes a three-year course and the graduates are employed afterwards in directing and developing the fisheries of Japan in the different areas where fishing is carried on.

Our plan must be to train the more intelligent young fishermen as instructors, and our methods must be of such a nature that the interest of these young fishermen shall be gained. When this is furnished they will soon find means of adding to their equipment whatever more is necessary.

Methods of Instruction

How shall we go about it in Canada? We would suggest that, first, the Government undertake the publication of suitable bulletins freely illustrated and very simply and clearly worded. Second, that the Government should provide demonstrations by means of travelling instructors at suitable centres. Short courses, suitable for selected leaders from all fishing localities should be provided thereat. In addition to these provisions, courses in nature study having to do with the fisheries should be given in all public schools in fishing communities. Then, in the organization of the fish hatcheries and in the management of them, provision should be made for the training of men in that special branch of the service. Finally, winter schools should be inaugurated wherever ten or twelve persons could be induced to attend, each with courses for young fishermen (a) in fishing subjects and (b) navigation and boat machinery. It should not be beyond our capacity to provide such opportunities by the hearty and cordial co-operation of the Department of Fisheries, the Provincial Departments of Education, bodies of public-spirited citizens, and the trustees of the public schools concerned. All that could be done in this direction would accrue to the national welfare through the conservation of the fisheries themselves and, best of all, through the improvement of the conditions and betterment of the outlook of the fishermen and their families.

The interest on the $5,500,000, Canada's share of the Fishery Award, could be more profitably expended by applying it to the fishery education and research than doling it out in small amounts to our shore fishermen, arranged, not infrequently, to synchronize with a pending election.

We have already suggested that the fishery protection service on the sea be utilized for purposes of fishery investigation, and we now strongly urge that the outside administrative staff of the fishery service on land be used for the purpose of education as well. Up to the present time the appointments to this staff have been entirely political. This applies to both political parties. The recipients have possessed no special qualifications. In many cases the appointments are considered as rewards for past political services rather than for duties to be performed.

Reorganization of Service

This service should be thoroughly and speedily re-organized and every official who has no special qualifications to fill the position he holds should be dismissed forthwith and a person of technical or scientific knowledge appointed in his stead. This is particularly applicable to that class of officials now known as fishery inspectors. These positions should be filled by young men of education, expert knowledge and

enthusiasm "who believe that they have in that field of service a mission worth while, a great cause to advance."

The instructors should visit the fishing centres frequently during the summer months, take statistics, and give special instruction to fishermen such as, in their judgment, is most necessary at the time. During the winter months they should lecture on fishery subjects and instruct day and night classes at different fishing centres throughout the Maritime Provinces. This would give our fishing population a vocational education such as our agriculturists have received for many years, to the great advantage of themselves personally and the State as well. To this education our fishermen are surely entitled, and we trust that action will be taken by the Federal Government along these lines at an early date.

For the actual enforcement of the fishery laws and regulations a staff of naval police should be created along the lines of the Northwest Mounted Police. This force should be absolutely free from politics, should be uniformed and disciplined and under the charge of earnest and energetic officers. They should be handed the fishery regulations with instructions to enforce them without fear, favor or affection. We feel sure that if this course were pursued illegal practices would cease, and we would hand on to posterity, unimpaired, the natural fishing resources of our country.

And, above all things, our fishery laws should be statutory. The power should be taken from the Marine and Fishery Department to change laws by orders-in-council to suit political exigencies. Both parties have been grievious sinners in this respect, in consequence of which our industries have suffered. The oyster industry in Prince Edward Island is, for commercial purposes, fast passing out of existence, and the lobster industry has been very materially depleted in certain sections by illegal fishing. We send representatives to Ottawa to make our laws, and it is the proper function of the executive to enforce these laws. Of late years more and more power has passed from the Parliament to the executive and the result is that to-day we have legislation by order-in-council. That system should not exist in a democratic country; it is not in accordance with the principles of democracy. We have been fighting to destroy autocracy in Europe, and we are building up an autocracy in Canada by handing back to the Crown the privileges that our ancestors won by long and hard struggle; in many cases with their life's blood. Parliament should make the laws, and the executive should enforce them, and we expect our representatives in Parliament and our Senators to perform the functions for which they were elected and created, which is, primarily, to make the laws of Canada.

The Knit Goods Industry During the War

By I. BONNER
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IN looking back over the past five years one is struck by the great change which has taken place in the knit goods industry in this country. During the first ten months of 1914, trade was stagnant; the shelves of both jobber and retail merchant were heavily stocked. The result was that immediately following the opening of the world contest in arms, this country was able to supply considerable quantities of goods for civilian trade abroad, as well as for the army. Prices of raw materials and yarns at that time were low and labor fairly plentiful.

During the early part of 1915 our Government came into the market for clothing to outfit Canada's new and rapidly growing army, and representatives were also sent from the British Government to purchase immediate and future requirements. About July of the same year, the Knit Goods Association of Canada sent over to Britain a representative to look after their interests in the securing of business, and very considerable orders resulted.

On the entry of Italy into the war the Knit Goods Association through their representative was instrumental in obtaining good orders from that country and from that time forward the industry took on a new lease of life. About the later half of 1915, values of raw materials commenced to advance and restrictions were placed on the import and export of manufactured goods by Britain. This country being a heavy purchaser from the old country, the demand for home-made goods commenced to stiffen, and to take care of home and foreign requirements became a problem for the manufacturer, in view of the great call of our manhood to the army.

Later on when the United States came into the war, further calls were made on Canada to supply goods to that country, and it is very much to the credit of the industry that it surmounted all difficulties and was able, through the purchase of new machinery, to supply large quantities to the new ally.

Both Britain and the United States having placed wool and woollen wastes among materials that might not be exported, it was up to this country to make arrangements with the British Government for their supply to Canada. The Canadian Wool Commission was called into existence and through its co-operation with the British authorities arrangements were made which have kept us supplied with all qualities of wool not obtainable at home.

During the progress of the war, materials and labor have kept constantly on the increase, until to-day they are at dizzy heights without any immediate relief in sight. Stocks throughout the country are not heavy, though many merchants have considerable back orders undelivered, which will have a tendency to restrict fall 1919 purchases.

Many people have thought that immediately on the prospects of peace, values would drop, and while we all know this must come in time, yet we fear the demand for goods abroad will be so great that the drop will not affect fall 1919 prices. The cancellation of war orders will be a large factor in the production of knitted goods, as many manufacturers who ran their plants night and day, will have to curtail production, and home requirements will now be more easily taken care of.

Owing to the restriction of export of cashmere yarns from Britain and the United States, the cashmere hosiery manufacturers have been at a standstill, but everything points to an early lifting of the embargo.

Canada has made an enviable reputation for herself in this branch of the trade, and her equipment is second to none.

Considerable machinery has been brought into this country during the past four years and we are in a much better position to supply our home trade than ever before. It remains to be seen whether we are in a position to handle foreign business successfully during the days to come when we have to face keen competition from abroad.

Everything considered, the knit goods manufacturing industry is in a very healthy condition. Wages are good; the supply of male help is rapidly improving and female help more slowly. The extension of plants has been considerable and we must now look for a resting period that will give the trade time to take stock of itself.



A Mammoth Shipbuilding Plant at Vancouver

Several steel ships of 8800 tons deadweight capacity are here shown in various stages of construction

Steel Shipbuilding in British Columbia

British Columbia Cannot be a Shipbuilding Centre if Canada's Policy Continues to be One of Wholesaling her Natural Endowment, Raw Materials — Policy of the Dominion Must be the Encouraging of Finishing the Product Here

By JOHN R. DUNCAN

Managing Director, Vulcan Iron Works, Limited, Vancouver

CAN British Columbia continue to be a factor in shipbuilding after the war, under the most ordinary conditions, when contracts are comparatively scarce and prices low? Yes, if British Columbia will appreciate it is a long way from anywhere and create an atmosphere of willingness to get down to business, realizing that all great businesses have been built up by hard work and sacrifice, combined with careful, scientific management.

With the submarine campaign going full blast in 1916, surely it was obvious that we had to build ships in this country and would require steel; yet a good serviceable rolling mill was allowed to cross the line. I cannot give confirmation, but have always thought that the Dominion Government must have had this mistake in mind when they made their final deal with the Dominion Iron & Steel Company, which at least has *some* Canadian capital in it.

A Great Opportunity

This Company has a great responsibility, and it is to be hoped its outlook will be big; that it will use every known—yes, and unknown—method to place itself on the steel map—not as a sluggish, contented-with profits institution, but as an organization chock full of energy and new result-getting ideas and full appreciation of its national importance. It should not think of Canada as an industrial dependency of the United States, but should help Canada hold a proud place in the steel world.

Such an opportunity never was presented to any Canadian corporation. The men they keep at the top will have a whole lot to do with it, and we must not forget that Andrew Carnegie is British, but probably his salesmen were American. A good combination!

Let the government with the ships it controls combine with same a visualizing of the shipbuilding situation in the big Canadian sense: following this, an arrangement should be made for shipping steel from the Nova Scotia mill or Eastern Seaboard on Government ships via the Panama Canal, at rates to equalize conditions and give British Columbia a fair competitive opportunity on raw materials.

If we fail to obtain business after this, it is our own fault; but I would say to the Eastern as well as the Western Canadian—"Be a real Canadian! Do you think Canada stops at Toronto on the one end and Vancouver on the other?" The British Columbia branch of the Canadian Manufacturers Association is doing much educationally to improve relations and understanding between East and West—more power to it.

The proposed extension of the work of the Canadian Industrial Reconstruction Association is a sign of the times; but to be national in effect, this organization, claiming for its ideals national readjustment to the new conditions and better understanding between East and West, must understand that Winnipeg is not the West, and that if the Eastern manufacturer understands the grain grower and works with his associations, he can be indifferent to the balance of the West.

Here, certainly, lies a national danger. British Columbia is fast becoming Americanized in spirit, and a feeling prevails that official Ottawa shirks its responsibilities here. I venture to state if a census were taken among the younger generation in British Columbia as to which country they would prefer to belong—United States or Canada—80 per cent. would vote United States. You do not find this condition in Seattle. They are all for "U. S. A." But then their State gets wholehearted national consideration at Washington.

The Policy We Need

British Columbia cannot be a ship-building centre if Canada's policy continues to be one of wholesaling her natural endowment—raw materials. The policy of the Dominion must be the encouraging of finishing the product here. To this all manufacturers must add labor, skill, in the most acute sense, and art. By so doing we can further the justification of an extended and practical shipbuilding programme in Canada.

The shipbuilders in a Province like British Columbia, admittedly far removed from the more numerous manufacturing centres of the East, should adopt a broad policy and encourage small shops in their own centres that show a tendency towards progressiveness to specialize in everything

contributory to the economical completion of a ship. A high standard of workmanship should be set, as in the days to come certain companies will have a good reputation, and a shrewd owner knows what a good job in the first place means in the economical operation of a ship.

The small shop system also distributes labor and saves concentration, for it is a well known fact that if once trouble gets a start in a very large yard, it is harder to handle than in an institution where there is at least some personal touch with the management. Opportunities of observation by an interested party are increased; while initiative, development of detail, and improvement of method of manufacture also have a better chance.

It cannot truthfully be said that the shipyards of British Columbia are turning out ships as fast in actual time as the yards across the line; but there are no yards in the United States or Canada subject to so many difficulties as our yards in this Province. First, there is the distance from the steel mills, and all associated with that point to be considered, then there is the disadvantage of not being near enough to frequently add the personal touch to your correspondence and as it stands to-day, with all steel coming from the States and subject to Washington's approval, this element cuts quite a large figure.

Despite these and other limitations and difficulties, and while Canada in the past has not been known as a ship-building country, British Columbia need feel no shame as to her activities to date. The last city that official Ottawa ever expected to have the largest yard in the Dominion, was certainly Vancouver, and yet—it is a fact this proud record is held here, with the yard located on False Creek, and the last 8-800-tonner was launched in 63 days.

Indeed, this is not surprising, for anyone who has observed the activities and developments in other centres of commerce, and is free from local prejudice, cannot but be impressed by the possible opportunities of Vancouver, where the *Alaska*, the first of many 8,800 tonners, was built, and passed quietly out to sea—a credit to her builders, J. Coughlan & Sons, and British Columbia. But this was not the first steel ship to leave Vancouver, for the *War Dog*, the product of the Wallace Shipyards, had already gone to sea, and returned for another cargo.



A Splendid Product of B.C. Industry

This striking view of the S.S. "Alaska" was taken looking aft from the forward crows' nest, while the ship was on her trials

Examine the records of the great old world concerns and you will find men of great deeds and thoughts have been at their head. They were spending time and money in all directions as it related to the betterment of their industry. What was the result? They created a desire to build ships—good ships!—and when the nameplate went on it meant something, not only to the yard, but to the community where it was built, and to the country that is still proud—but in perhaps an over unobstrusive sense—to sing "Rule, Britannia."

And the original sacrifice and large outlook of these great men made it possible for Britain to bottle up the Germans in the Kiel Canal and sweep their fleet from the high seas. It was the industry and concentration of effort of those men that made it possible for our navy to be increased from 2,500,000 tons in 1914 to 8,000,000 tons in 1918; and their job was harder than ours at the beginning.

This mighty result should be an inspiration! If we cannot do things with a record like the foregoing to lead us there surely must be dry rot within us. But, of course, we can. Let us believe in ourselves in the big, active, striving, sacrificial way. Let us examine every handicap we have. Look the problem straight in the face. Keep on working. You never heard of an individual who pursued these methods being a failure, and the State is always a reflection of its inhabitants.

Another point we must consider is—that every accessory to a ship actually made here from our own raw material will help our rate of exchange.

Let us suppose our rate of exchange with United States is 2 per cent. (and our present methods are certainly contributing to that end) we should be handicapped by that percentage while doing business in open competition. Put the cost of a vessel at $1,000,000 and assume the profit at 10 per cent., which is $100,000. In the United States the cost of the vessel would be $900,000, everything also being equal, which, unfortunately, is not the case. In Canada, assuming the purchase of steel, etc., from the States to total $400,000, it would be $908,000. The balance of $8,000 represents 8 per cent. of the profits of the American builder, or, in other words, he has an $8,000 start on us before we lift a hammer. He also possesses the money, with generally quick thinking and acting management; and, to our loss be it said, British yard managers with

just that thoroughness and knowledge they at first lacked across the line to carry out the "ginger" methods of the management.

This can be remedied to a great extent by the successful operation of the rolling mill in Nova Scotia, but if that company does not give the Canadian builder a price that will offset at least the handicap of exchange, they are practically not getting anywhere.

Although dealing with exchange, let me say, parenthetically, that there are numerous other considerations which should not be lost sight of by this Company, but already their responsibility has been emphasized.

To Get the Best Results

The business side of the industry should include the apprenticeship of a good class of boys. The Provincial Government should not lose sight of the value of the Industry to the Province, and with the development of Technical Schools to meet such need, should assist boys along right lines toward becoming competent and successful engineers and mechanics. To ensure the best results, teachers should be chosen from among practical experts direct from the shops. These instructors would then know the material they were working on, and be able to allocate boys according to their tendency.

As a corollary, the University of British Columbia should offer scholarships, which would have the effect of stimulating ambition and the desire to excel. These suggestions, while capable of practical success, are only advanced as theories of my own, founded on some experience and thoughts on the subject.

To achieve success in the Shipbuilding Industry in this Province, we must not depend on the Dominion Government programme alone. There should, indeed, be rather a tendency to be independent of Government contracts; an arranging of our business affairs to meet all competition, while an aggressive competitive spirit should be maintained: there should also be a co-ordination of effort in developing new ideas, with a common ground for research and business getting. Different companies should specialize in types.

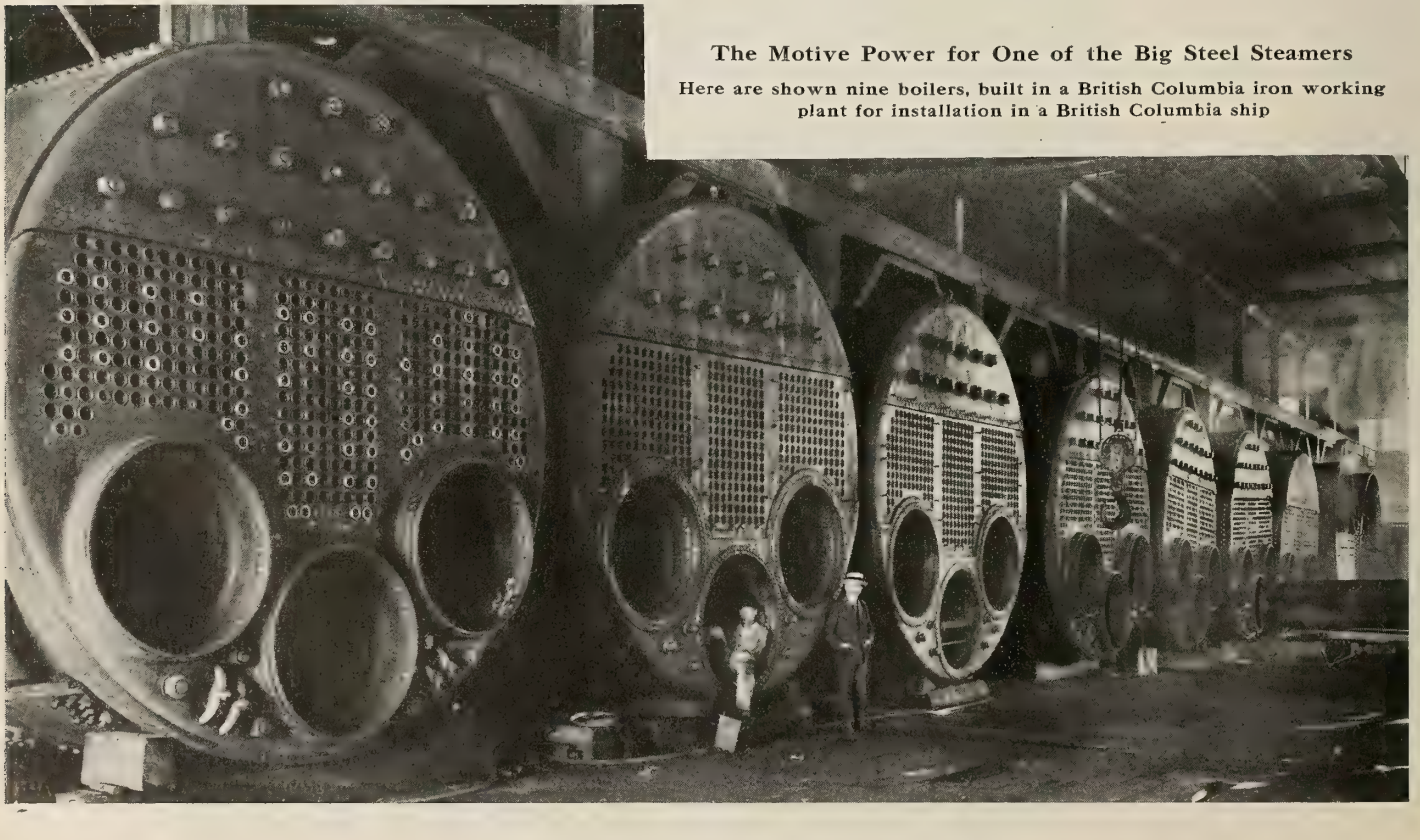
The co-operation of Labor must be obtained, and when all is said and done, the heart of Labor is all to the good. Be frank with Labor men; state your case clearly; ask their co-operation; show them facts as they affect them pemanently, and they will toe the mark if they are loyal Canadians. If they are not, let them look elsewhere.

The country which deals with labor conditions in the most intelligent way, and along advanced lines, having a full appreciation of the present unusual conditions, and a fair grasp of what the future will probably present, and handles same as it affects the nation rather than allow individual communities to work in an isolated way with their own problems, should be found in the end not only to be the most efficient but the most progressive and contented. Canada should fight for this place, and British Columbia should not be found wanting in its contribution to the national effort.

When Government officials are involved and design details are under controversy, they should get away from conventional methods, and practise a Dominion, rather than a Departmental, outlook. British Columbia builders also must be ready, under equitable conditions, to co-operate with officials and submit details with an effectiveness that counts. The Government should have a staff in British Columbia, competent to give definite and final rulings.

Progressive Methods Needed

There must be a community perspective, a "putting of our house order" to deal with every new condition, an appreciation of relative position geographically—not only from climatic standpoint, for in this we have the advantage, but in view of our isolation from the numerous larger Canadian centres. Progressive methods must also be employed in handling labor. The manufacturer must know what is



The Motive Power for One of the Big Steel Steamers

Here are shown nine boilers, built in a British Columbia iron working plant for installation in a British Columbia ship

going on elsewhere, and to attain that knowledge he should travel and see what the other man is doing; also his organizations should keep him posted.

There should be no question as to the permanence of shipbuilding in British Columbia if we commence by believing in ourselves and have an exact knowledge of our resources, developing the latter intelligently and wisely to meet our needs, and recognizing certain fundamental principles. Let us be fair with the Dominion Iron & Steel Company, whose volume will be ample to take care of our needs. We should not be visionary and talk about steel mills here. Rather agree to give them the mill and support their product, and demand from the Government—who helped create that mill, and are interested in its success—as much consideration in the national sense as they gave the steel company.

Let us awaken! Let us be true to ourselves, and we can accomplish grerat things if the personnel of our institutions have the elements of greatness. Let us cut out the nightmares of the past and get down to the business of the present. Let us have no more cheap politics, but carry out in practice the Hon. Ballantyne's statement that such would not enter into the Government's shipbuilding programme. Let us make "Efficiency with Honor" our war-cry and peace-cry; and again, let us believe in ourselves and our ability to do at least as well as any other country, for an admission to the contrary is not only a statement of personal inadequacy, but a reflection on the originality and resourcefulness of the whole Province. Let it be remembered that without perspective no country can become great.

The Lumber Industry of the Coast Province

By T. J. McILVEEN
Editor, "The Pacific Coast Lumberman," Vancouver

(From the "B. C. Shipping Gazette")

WITH the prairie lumber market on the decline for the past year and with no real indications that there is going to be an uprise in that district, with the eastern Canadian market not up to the mark for reasons that it is not necessary to enter into, and with embargoes being put into operation by the United States government, year after year, the British Columbia lumber industry is face to face to-day, and will be face to face for some time to come, with a condition of affairs that is going to have a serious effect on the trade. One result of this state of affairs has been to pile up the stocks in the yards. A plan of curtailment has been decided on, but that is only going to be a partial remedy. The real remedy lies overseas, and let there be no doubt on that score.

B.C.'s Annual Lumber Cut

The annual cut in the province of British Columbia is approximately one and a half billion feet of lumber. Of that amount, British Columbia exports something between sixty and seventy billion feet to the foreign markets. Among the principal importers of British Columbia lumber are Great Britain South Africa and Australia. Since the commencement of the war the cargoes that have been shipped to those countries have slowly but surely diminished in size until, at the present time, the export business is down almost to the vanishing point. Of the total importations to Australia, British Columbia claims about 4 per cent. The total imports of that country are 250,000,000 feet so that it will be seen to what extent British Columbia is interested in the land of the Southern Cross.

On the other hand Canada, that is to say British Columbia, enjoys at least 60 per cent. of the imports into South Africa. The explanation of this is that there is a preferential tariff between South Africa and Canada and consequently British Columbia lumber has an advantage over all other exporters. There is also, to some extent, a similar advantage with regard to New Zealand, and there seems to be no reason why Australia, and indeed all the other parts of the British Empire overseas, should not enter into a like agreement with the Dominion. The result of such an ction, it is needless to say, would be enormously advantageous to Canada, and particularly to British Columbia.

Situated so favorably from a geographical point of view, there should be no obstacle to this province having at least fifty per cent. of the trade with Australia. Of course, this opens up an important subject but it is one to which too much attention cannot be given, and after the war it is safe to say that it is one of the questions which will occupy the minds of the representatives of the Empire from the four corners of the earth. A preferential tariff within the Empire is the one thing that will do more to consolidate and weld that Empire together than any other matter that can be conceived.

I have said that the prairie market is, at least for the time being, dead. Something will have to be done to bring about a revival in business conditions and the concensus of opinion is that unless the lumber manufacturers of British Columbia prepare to invade the foreign markets, they may as well throw up the sponge and get ready to see their competitors from south of the international boundary line scoop in the entire trade, or ninety-nine per cent. of it. Men like Capt. Robert Dollar, of the Canadian Robert Dollar Company, of Vancouver, have been driving this point home, day after day, apparently with little or no success.

The trouble with the lumber manufacturers of British Columbia is that they have stuck too long to one market, that is, in Canada and a trifling part of the overseas markets. The Dollar Company, on the other hand, has nursed and cultivated the Oriental market while the Hastings Mill of this city has established conections in South Africa and in the Old Country simply by the process of staying with them through good and evil times. The average manufacturer of British Columbia stays with a market so long as the prices are high. The moment the figures show an inclination to droop, they migrate elsewhere and so on ad infinitum. But that is a game that can be played once too often.

After-the-War Trade

In view of the altered economic conditions that are sure to arise after the war, the big manufacturing interests of the United States are making preparations so that they will not be caught napping. In New York, alone, there has been formed a combination of interests representing a capitaliza-

tion of $100,000,000. In the southern pine district of the United States, the association representing the lumbermen of that locality have already circularized France and Belgium and inquiries have been received from the French and Belgian governments to ascertain what length of time will be necessary to transport billions of feet of lumber over there when the guns have ceased to roar. And so on right through the United States.

And there is the Baltic to be reckoned with. Russia is certain to settle down to more businesslike conditions after the war, and that means one thing, of a surety, namely, that the Baltic ports will be opened again, that Russian lumber and timber will be sent to the United Kingdom in tremendous quantities. And not only will the Baltic forest products be sent to Britain. Prior to the war the Baltic provinces enjoyed an extensive trade with South Africa and Australia and part of that trade that Canada has been able to secure is due to the fact that there could be no exports from the Baltic. There is thus going to be keener competition than ever and, in the absence of preparedness on the part of the British Columbia lumber manufacturers, they are going to be up against a state of affairs that is not going to spell success for the British Columbia product.



Standing B.C. Sitka Spruce, from which is produced Pulp, Paper and Aeroplane Lumber

Some few years ago there was formed in this province what was known as the Exploitation Association. Unfortunately that organization did not receive the support to which it was entitled from the mills, and the result was that it went out of business. The opinion of the lumbermen of British Columbia is that there is only one remedy for existing conditions and that is the rejuvenation of that or a similar body to take charge of the overseas trade. There are times when a mill finds it extremely difficult, if not altogether impossible, to handle a rush order. The association alluded to has it in its power to distribute the order among a number of the mills and thus solve what, at first sight, appears to be an insuperable difficulty.

This subject has been put up fairly and squarely to the Lumbermen's Association of British Columbia, and though there would appear to be a unanimity of sentiment in regard to it, there is a lack of initiative on the part of the members to bring such a scheme to fruition. But it is admitted that this is the sheet anchor of the lumbermen and the sooner they act on that principle the better will it be for trade in general.

There is another phase of this question to which serious attention should be devoted. For at least twelve months after the war transportation facilities are going to be at a premium. The question has been mooted whether it would not be to the interests of the trade in British Columbia to establish a line of wooden steamers to handle the forest products of the province. Ways and means can surely be found to arrive at a point whereby the lumber trade would be facilitated in this connection. Government subsidies are not an unknown thing, and there is no reason why this aspect of the matter should not be put up to the federal authorities in conjunction with the provincial government.

Over 53,000,000 feet of British Columbia lumber was exported from Vancouver by means of ships during 1918. This is a tremendous increase over the preceding year when 18,083,622 were exported. The demands of the markets reached by the Canadian Robert Dollar Company's ships, the Hastings Mill and the Imperial Munitions Board were responsible for the great increase. The Dollar mills exported 20,016,000 feet, chiefly into China; the Hastings Mill sent 13,329,394 feet to Australia, South Africa and Europe, exclusive of their shipments on I.M.B. craft. A total of over 14,000,000 feet was taken to United Kingdom ports by I.M.B. wooden ships. This latter total was made up of numbers of different lots from different mills. The I.M.B. totals are very conservative, some of them not being obtainable and being estimated at a low average of the known quantities taken on other ships of similar nature. The distribution of the lumber shipments was as follows:

South America	4,231,402
China	18,659,000
Australia	6,035,934
South Africa	7,061,523
Fiji	500,000
Japan	500,000
United States	2,279,000
United Kingdom	14,022,817
Vladivostok	113,383
Total	53,403,059

Pulp and Paper Industry in British Columbia

Pacific Coast Province Presents a Great Opportunity for Pulp Manufacture—Industry is Still in its Infancy and the Near Future Should See a Very Great Development—Business Almost Wholly Export

By GEORGE F. WHALEN
General Manager, Whalen Pulp and Paper Mills, Limited

CONSIDERING the fact that the sulphite pulp manufacturing industry is one hundred per cent. export business, the return of the world to peace activities and the throwing open again of markets, has a very direct bearing upon the immediate future of the industry.

The Whalen Pulp and Paper Mills, Ltd., for instance, has for years supplied the markets of the United States, South America, Japan, Australia, China and India with sulphite pulp, not one pound of its product being sold in Canada. It is obvious, however, that the future foreign market for British Columbia pulp and paper may be somewhat affected by the re-entry of the Scandinavian and Japanese pulp and paper manufacturers into the export market. Prior to the war, the rate on pulp from Sweden to Australia was $4.00 per ton, as against $10.00 per ton on this commodity from British Columbia to Australia; but with the return of more vessels to this coast there would appear to be every reason to expect a growth in the export pulp and paper business for this province.

It is common knowledge, also, that the war has created many uses for sulphite fibre that hitherto did not exist. This commodity is now utilized in the manufacture of explosives and munitions, and is also used in the manufacture of clothing. There are many other uses to which it has been put since the scarcity of other commodities compelled science to turn its attention in that direction, and this has all a direct bearing upon future demands.

For pulp producing purposes the forests of British Columbia are very extensive. It is true that during the past few years the roducption of aeroplane spruce has resulted in the cutting of a vast amount of this timber, but the effect on the pulp forests of the province as a whole is hardly noticeable.

The growth of the sulphite pulp manufacturing industry in British Columbia is well evidenced in the history of the Whalen Pulp and Paper Mills, Limited. Its first plant commenced operations at Mill Creek, Howe Sound, in 1910, producing some 50 tons of pulp a day. The demands of a steadily growing market soon saw the capacity of this plant increased to such an extent that within a short time it was producing 90 tons a day. On December 1st, 1916, the Empire Pulp and Paper Mills, Ltd., opened up the plant of the Swanson Bay Forests Wood Pulp & Lumber Mills, Ltd., at Swanson Bay. This plant had not been in operation for some time, and when taken over by the Empire Company was equipped to turn out about 25 tons a day. At the present time it is turning out 50 tons a day. In August, 1918, the company opened its Port Alice plant, the first sulphite fibre plant on Vancouver Lsland. This plant has a capacity of 60 tons a day, but the mill and buildings are laid out to produce, when the market demands, 120 tons a day.

One important branch of war work in which the pulp mills of the province have been been enabled to participate has been the turning out of aeroplane spruce. The Swanson Bay plant and the Port Alice plant of the Whalen Company have been manufacturing large quantities of aeroplane spruce, and in addition have been turning out various grades of lumber, boxes, lath and shingles, the United States providing an eager market for both boxes and shingles.

It was in May, 1917, that the Whalen Company entered the pulp manufacturing field on a large scale by amalgamating the British Columbia Sulphite Company, Ltd., the Empire Pulp and Paper Mills, Ltd., and the Colonial Lumber and Paper Mills, Ltd. It now gives employment directly to over 1,200 men, and indirectly furnishes employment through the logging camps for another 300. At the Mill Creek and Swanson Bay plants it operates its own hydro-electric system, and has plans for establishing similar systems in its other plants in the near future.

The sulphite pulp industry of British Columbia is in its infancy. Other companies will come as the vast resources of the province becomes more widely known, and as the growing need for more pulp fields is felt. Owing to the fact that the pulpwood stands scattered through other timbers, it is necessary to have plants that can utilize these other trees and produce merchantable timber from them. British Columbia presents a very great opportunity for pulp manufacture, either inland or on the Pacific waters. The near future will undoubtedly see a very great development in this industry.

A Rapidly-Expanding Industry

The pulp and paper industry in British Columbia is of comparatively recent origin, but to-day there are established in this province, the Powell River Company, with mills at Powell River, B.C., having an output of 225 tons of newsprint per day, and employing in all branches of their work between 1,000 and 1,500 men; the Pacific Mills Co., with mills at Ocean Falls, B.C., having a capacity of 185 tons of newsprint and 35 tons of kraft wrapping paper per day, employing about the same number of men as at Powell River; the Rainy River Pulp & Paper Co., located at Howe Sound, manufacturing kraft pulp only. Another company, whose plant is now in course of construction, is the Beaver Cove Lumber & Pulp Co., Ltd., who expect to manufacture, commencing about next February or March, kraft pulp for use in the making of twine and fibre. There is also the Whalen Pulp & Paper Mills, Ltd., to which special reference is made in the accompanying article by Mr. George F. Whalen.

One point on which the proprietors of the different pulp and paper mills rather pride themselves is the accommodation furnished by them to their employees at the plants—all these plants being located some distance from the centres of population in British Columbia. The communities surrounding their plants are model towns in every respect. The management of the different concerns believe that the world is just beginning to wake up to the importance of good housing, and they point with pride to the small towns surrounding their plants, where they provide the very finest individual accommodation for single men, and houses for men with families.

State of British Columbia Fishing Industry

An Interview with H. O. Bell-Irving, the Anglo-British Columbia Packing Co., Limited



A Fleet of Japanese Fishing Boats at the Mouth of the Fraser

THE appointment of a commission, resident in British Columbia and non-political in personnel; the introduction of more modern methods, one of which should be the using of fish traps; and the placing of the industry on a footing to enable it to compete with the industry south of the international boundary, are among the most urgent needs of the salmon canning business in British Columbia, is the opinion of H. O. Bell-Irving, representing The Anglo British Columbia Packing Company, Limited.

That the decline in the Fraser River salmon fisheries has been a national loss, and that the solution to this condition of affairs is rehabilitation; the prohibition of export of salmon for manufacturing purposes, and the decrease, rather than the increase of more canneries in the province, are urged by Mr. Bell-Irving.

"Three points seem to me to be of outstanding importance in connection with the present and future conditions of the salmon fisheries of British Columbia. The first is conservation; the second is economical prosecution of the industry, and the third freedom for expansion and intelligent progress," said Mr. Bell-Irving.

"The extinction of the Fraser River salmon fisheries has been a national loss for the Dominion, as well as an indivdual loss to those engaged in the industry. This emphasizes the greater need for conservation for what remains.

"That the Fraser River can be rehabilitated is the opinion of those best qualified to judge. See the evidence of Hon. Wm. Sloan, Fisheries Commissioner for British Columbia, and others, given before the International Commission, which sat in Vancouver in May of this year. It was then strongly advocated that the fisheries should be closed up entirely for a term of years. No half measure would be of any use, it was thought.

"A special Fisheries Commission appointed by the Dominion in July, of 1917, submitted an exhaustive and interesting report, dealing with a number of questionaires submitted to it by the Minister of Fisheries at Ottawa. The scope of examination did not extend to the Fraser River, which was unfortunate, but the report, as far as it went, was exhaustive, was made with great care, and presented the facts in a graphic and business-like form, for which work the members of the Commission have been very generally complimented by those engaged in the industry.

"In reply to Question No. 1, as to permitting the increase in the number of canneries, they recommended that in District No. 2, to which district the report in mainly confined, the number of canneries should not be increased for a period of five years. This is undoubtedly correct, there being already more canneries than are needed.

"Questions No. 2 and 3 are as to the total number and description of fishing boats being used in the various rivers. The reply to that question advises that all fishing boats should be detached from working for special canneries and recommends that canneries 'should mutually agree to carry out a fair allotment of boats on the lines followed in previous seas.'

"The situation which arises is as follows: The total number of canneries has increased to far more than sufficient for an average year; the number of boats remains limited and the canneries are not assured of their supply of fish. Though they have to make a large outlay in preparations, any one dissatisfied packer, however irresponsible, is in a position to upset any arrangement attempted. This scheme of voluntary allotment was tried many years ago, and had to be abandoned, the Provincial Government stepping in and making the allotment themselves. Instead of discouraging all useless and disadvantageous competition, involving higher costs, the suggested methods would seem to encourage such competition.

"Question No. 5 asks whether export of salmon should be prohibited, which is decided in the negative. It is decided later on, however, that 'the prohibition of export for manufacturing purposes may be found wise to re-adopt, and points out that 'the more or less irregular incursions of American buyers cannot give the Canadian fishermen anything comparable in value to the steady demand of a fairly conducted and successful industry,' which I entirely endorse.

"The Commissioners on being asked to state other points of importance, not embodied in the question, said 'the system is characterized by extreme centralization at Ottawa,' in which I entirely concur.

"The whole fishing industry of British Columbia," continued Mr. Bell-Irving, "is so technical and complicated, each river requiring different treatment, it is impossible for a minister, already burdened with important work in Ottawa, to attend to the details and do justice to our industry. It is as difficult for him to do justice, as it would be for a cabinet minister resident in London, to administer the affairs of the Dominion. The report points out that the fishing interests have made representations in favor of more immediate access to executive authority. The administrative system clearly should be so adjusted as to operate directly, comprehensively and efficiently on the spot."

"Owing to pressure of work the minister has to leave the control of fishery matters mainly in the hands of subordinate officials in Ottawa, who are out of touch and sympathy with the needs of the situation. Justice cannot be done to a great industry under such conditions, and there will be no satisfaction until a change is made. It is only when some drastic injustice is done and grievances become too acute, that business men make the long journey to Ottawa to protest.

"The main concern for the public is conservation of the industry. Under the present regulations, economy in production is an impossibility, and competition in the export market will become still more difficult in the future, in view of cheaper production in the United States and Alaska.

"What has been strongly urged, is the appointment of a Board of Fisheries Commissioners, resident in British Columbia, strictly nonpolitical, and composed of men of high standing, who would act in an advisory capacity under the minister, to which Commission all questions requiring local knowledge would be referred. In the past, the consumers' interests have been entirely neglected. The industry is at present operating under regulations which compel the use of methods long since considered antiquated across the border.

"Why should there be five canneries in British Columbia to do the work which can be done by one in Alaska, with one-fifth of the labor? The British Columbia coast is similar to the coasts of Puget Sound and Alaska, and there is no reason why the more modern methods of using fish traps should not be introduced. There are now comparatively but few white men who care to engage in gill net fishing, whereas the work on traps is almost entirely done by white men, as it requires more skill and intelligence, and they are employed for a longer season.

"I do not think the large increase in taxes will be generally opposed, providing the authorities give the packers increased protection, and devote adequate amounts towards conservation. It is the general wish of packers in British Columbia, several of whom are fully conversant with methods in Alaska, that the British Columbia industry should be put on such a footing as to enable it to compete with our neighbors in the open market, as well as supply a cheaper and better article to the Canadian public."

The Industrial Progress of Vancouver

By J. REGINALD DAVISON
Industrial Commissioner, Vancouver, B.C.

IT is yet a little too early to judge accurately, but the year 1918 has seen a decided development in an industrial way at Vancouver. This is brought vividly before the eyes of the citizens by the erection on Industrial Island of factory after factory. This island, made from mud flats, lies right at the heart of the city, and as Granville Street, one of the two best business streets, passes right over the island, tens of thousands of people cross it every day.

The outstanding industry in point of the numbers employed and the increase during the year has been, of course, shipbuilding. A total of about sixty ships have been launched, with a combined tonnage of approximately 200,000 tons, and in addition contracts for further boats have been made, so that building for the next eighteen months or longer is assured. The Dominion Government, French Government, Belgian Government and Norwegian firms have each placed orders for large boats, and small craft for the coastwise and other traffic are being built for use in various parts of the world.

The activity in this line has been reflected in both the lumber mills and other shops which provide equipment and machinery for shipbuilding firms. Lumber trade in general has been good, and the value of the products of wood has been very materially increased because a number of firms are now making our raw lumber into finished articles. A few years ago practically all the output of the lumber mills was exported only as sawn lumber or used in the building trade, but now many firms have developed industries which make from the lumber finished products for our own and for foreign markets.

Mining throughout the province has enjoyed a good year, and in several quarters there has been an extension of plants. This has resulted in good business for the firms supplying machinery, equipment, etc., and, as a result, plants at Vancouver have been enlarged to meet this demand.

The fishing industry for the year has had several notable developments. The great demand for foodstuffs has led to the canning of new varieties of salmon, so that while the pack of the choice varieties of salmon has been lower than usual, the total pack has been in excess of any previous year. Another feature of note has been the beginning and development of the ground fishing trade, and to-day many varieties which were not caught and marketed in quantities even two years ago are now being secured both for a very much increased demand in the coast cities and for consumption in the prairies and in the east. The makers of several kinds of salt and cured fish have secured very good orders from foreign markets, and as a result there have been several plants erected to increase the output.

A notable feature of the year has been the increased attention which is being paid to Vancouver as a point for securing raw materials from the province and over the Pacific for distribution through all Canada, and with the providing of shipping facilities we are looking forward to trade with Eastern Canada through the Panama Canal and with other countries bordering on the Atlantic.

Group Plan for Securing Export Business

Commercial Intelligence Department Outlines Proposals for Grouping Industries in Order to Secure a Larger Share of Export Business—How Buyer and Seller will Probably be Linked Up—Immediate Requirements in Part of Belgium

By ALEX. MARSHALL
Manager, Commercial Intelligence Department

OUR Ottawa representative, Mr. G. M. Murray, is in receipt of communications from the Government and from the London and Ottawa offices of the Canadian Trade Commission, which insistently dwell upon the necessity of Canadian manufacturers being organized into trade groups in order to participate in business arising out of teh rehabilitation of the devastated portions of the Allied Countries.

To share in this business, Canada will have to compete with the most efficient producers in every country. The great volume and the urgency of the work will demand:

1. Production in large quantities, preferably in specialized plants.
2. Standardized products; and frequently (3) the establishment of Government credits.

These objects can only be attained by a general agreement of all or a majority of the manufacturers in any particular line, to work as one group for this purpose.

Establishment of Credits

To the extent of its financial resources the Canadian Government is willing, when an Allied Government expresses the desire that such a course be followed, to establish credits in Canada for the purpose of necessary reconstruction and rehabilitation materials. The credits so established will be subject to chequing out by the accredited representatives of the Allied Governments in Canada who will use this means of paying Canadian producers on receipt of evidence that the goods have been delivered as stipulated, and the terms of sale have been complied with.

The Allied Governments are desirous that the business of their respective countries should get back into normal channels as quickly as possible. Hence, with the exception of material for public works, practically all goods will be purchased by the regularly established brokers, wholesale merchants or manufacturers.

This is how the buyer and seller will probably be linked up. A wholesale furniture merchant in Belgium, knowing the needs of the district he serves, negotiates with the representative of a Canadian group for a purchase amounting to, say, $200,000. He is perfectly responsible for ordinary business transactions, but cannot pay out that amount of cash at once. In applying to the Belgian Government for a license to import his bill of goods, he also applies for financial aid. He supplies complete figures as to quantities and prices and the name of his prospective suppliers. The Belgian Government satisfy themselves that he is a responsible merchant, that the goods are necessary, and applies to the Canadian Government to establish a credit earmarked for purchases of furniture.

When this is done the Canadian Trade Commission receives full particulars of the proposed transaction. As it is supervising the expenditure of money belonging to the people of Canada, it will, either direct or through the officers of the furniture group, advise all bona-fide Canadian manufacturers of the product in question, as to the business in prospect. When all interested manufacturers have had an opportunity to tender, the Belgian merchant will close his deal on the best terms offering, payment of course being secured as outlined above. Provided a group fully represents all the manufacturers in its line, the Canadian Trade Commission will deal exclusively through the Committee of the group. Where a group represents only a portion of the trade, even though that portion be a majority, the Commission will insist that advice of the prospective business be sent to the outsiders before the deal can be closed. All the advantage, however, will rest with members of the group who, through their representative on the ground, will have received prior information.

To outline the possibilities of this business for Canadian manufacturers, there is appended a greatly condensed and quite incomplete schedule, showing the immediate requirements in part of Belgium only. This schedule was compiled since the Armstice chiefly by officials of the Government of Belgium.

There is one other factor that has not been generally known heretofore. All through the German occupation of Belgium, her people were forced to work and to sell required supplies to the Germans. In order to keep them partly contented, the Germans paid, in paper money, high wages and high prices, presumably with the intention of repudiating her paper circulation in Belgium, had the war gone the way they desired it and had Belgium become a subsidiary of Prussia. One of the first stipulations in the peace terms will be the redemption of this paper by German gold. Consequently, many of the people of Belgium, though the country is stripped of supplies, will have plenty of money to purchase their requirements and business will be greatly facilitated thereby.

Formation of Groups

A beginning has already been made in the formation of groups. Six tentative organizations are in hand. Wherever feasible, organizations at present operating for general purposes will carry out this export project. We should like to have expressions from the manufacturers which will enable us to select those groups in which there is a pressing need for organization in order that we may continue our work in proper sequence.

It is also important that manufacturers give us the names and addresses of British and European representatives who act for them, whether such representation be for their firms individually, or for groups with which they are affiliated.

The situation is still somewhat obscure in certain respects, but it is steadily clearing as the result of information coming to hand, and further bulletins will be sent to all members who express a desire to receive same.

CONDENSED EXTRACTS FROM SURVEY OF BELGIAN REQUIREMENTS, AS PREPARED BY THE BELGIAN SECTION OF THE INTERALLIED COMMISSION.

Probable Immediate Requirements for Building.—

	Tons.
Copper, sheets, bars and ingots	39,000
Brass, sheets and tubes	3,500
Machine Tools	60,000
Vegetable Oils	3,630
Mineral Oils	4,269
Pig Iron	1,012,050
Iron and Steel, worked and semi-worked	825,000

Hawsers, Steel Cables, Belting, Electric Power Plants, for Colliery Requirements.
Transport Material for Railroads—Locomotives, trucks, etc.
Automobile Transportation Material—Trucks, trailers, cars.
Depot Material—Turntables, forges, pits, drilling machines, jacks, etc.
Working Material for Reconstruction of Destroyed Buildings and Public Works.
Builders and Constructional Work—Crushers, mixers, hoists, cranes.
Bridges, Locks, etc.—Pontoons, chain and accessories.
Dredging Material—Dredges, tugs, sand carriers, lighters.
Canal Equipment—Lighters pumps, compressors, tugs.
Machines for Road and Construction Work—Scrapers, graders, rollers, etc., boilers, engines, pumps, steam shovels.
Small Tools—Shovels, picks, mattocks, etc.
Railway Construction Materials—Rails and accessories, tools, machine tools, motors, signalling apparatus.

Agricultural Machinery.—

	Tons.
Plows, single	40,000
Plows, 2 or more shares	20,000
Skimmers, Scarifiers and Cultivators	20,000
Harrows	75,000
Ordinary Rollers	20,000
Disc Rollers	10,000
Horse Hoes	10,000
Potato Plows	10,000
Seed Drills	2,000
Reapers and Binders	2,000
Mowers	2,000
Horse Forks	2,000
Horse Rakes	2,000
Winnowing Machines	50,000
Root Cutters	10,000
Chaffers	15,000
Churns	50,000
Carts and Vans	100,000

Hides and Skins—Tanning Material—Tanned Hides and Skins.—

For Belting and Industrial purposes	500
For Boot Making—Sole leather	300
For Boot Making—Uppers	450
Leather Belting	500

Programmes not yet received for
Plant for Textile Industries.
Plant for Tanneries.
Plant for Chemical Works, etc.

In addition to the above advice has been received from Ottawa that to anticipate requirements, groups should be formed to deal with such commodities as the following:

(*a*) *Outer Garments for men, women, boys and girls.*
Material cheap and durable, obtainable quickly in large quantities.

(*b*) *Stoves*:
Plain light type suitable for bituminous or anthracite. Knock down form. Standard sizes.

(*c*) *Cooking Utensils*:
Plain strong kitchen utensils, cheap and durable.

(*d*) *Boots and Shoes for men, boys, women, girls and children*:
Must be cheap, of heavy leather.

(*e*) *Furniture*:
Wooden tables and chairs, metal bedsteads, cheapest materials, shipped knocked down.

Quantity vs. Quality Production in Industry

A Sidelight on the Bonus Method of Wage Payment

By ROBERT ARKELL
Of Thorne, Mulholland, Howson & McPherson, Industrial Advisors, Toronto

IN a recent issue of a prominent magazine the bonus method of wage payment was attacked on two main points:

1. That the bonus offered caused a speeding up of production which seriously affected the quality of the output.

2. That the older men became discouraged and quit when they saw the younger men earning more than they could.

The article in question does not state who introduced the bonus method or what plants were affected, but it is safe to say that the party or parties responsible for the unfortunate experience did not understand the principles upon which proper incentives are based.

It does not require an expert on production problems to see that to simply offer a workman more money for a larger output is to deliberately court trouble. In the first place, no bonus, premium or other incentive can be properly determined without a close study of the plant's present production methods. Supposing the layout of the factory is such that the men are hampered in handling the material, or that the issuance of orders is not planned in advance to co-ordinate the efforts of all departments, or that the materials, tools, etc., are not always ready when required, and so on through the hundred and one obstacles which are primarily responsible for the unsatisfactory production. Could any incentive be sound that is based on such conditions? The responsibility for an unsatisfactory quantity of output does not rest entirely on the workmen. In fact, in the majority of cases it is the methods and not the man which are at fault. Make sure, then, that you are not paying too much for your present output before you offer more for a larger production.

The question of quality of the product is also due, to a large extent, to faulty standards rather than carelessness of the workmen. No workman is going to devote more time to your product than is necessary to "get by." Draw up your standards, make the workmen acquainted with them and then appoint inspectors to see that the standards are adhered to. It may be argued that the additional expense incurred for inspection may offset the saving in overhead, which is possible if there are no detailed standards to work to. It is remarkable the number of plants where standards fluctuate daily. Whenever a customer complains the standard is immediately raised to ideal heights, but after the effect of the reprimand has worn off the standard falls to the old level again. Such a condition could not exist if the standards were printed and their respect insisted upon. Nor would a proper bonus method affect them. It stands to reason that no workman is going to waste his time on a job which he knows will be rejected, and consequently will not be paid for. It is necessary, however, to set your bonus rates at a point where he can give the necessary attention to standards or else he will find that he cannot earn sufficient money, and quit.

As to the complaint that the older men become discouraged when they see the younger workmen earning more money than they: never was there a more groundless charge against the bonus method of wage payment. Young men as a rule can turn out more than older men. On the other hand the older men are generally more conscientious than the young fellows. But if the standards are definite and adhered to, what possible objection could one man have that another earned more money? If the bonus method was at fault why did not some of the younger men quit because other young workmen earned more than they? If it aggravates your labor problem to pay one man more than another because of different earning capacities why not pay everybody in the plant the same wages? Because it is not practical. Just as there is a variation in the ability of different workmen so must there be a variation in the wages. If you do not recognize a good workman and pay him more than a poor workman, then the good workman is going to another plant where his superiority will be rewarded.

The Financing of Canadian Export Trade

The Machinery for Financing Foreign Exports is at the Present Time More Complete than it has ever been and the Canadian Chartered Banks are Equipped and Prepared to do their Share in the Extension of Canadian Foreign Exports on a Peace Basis

By H. P. VAN GELDER

Assistant Supervisor Foreign Department, Canadian Bank of Commerce



Illustration by courtesy, Commercial Intelligence Branch, Department of Trade and Commerce.

Where Canada Will Make a Bid for Export Orders

This is a scene at the famous Lyons Fair in France, the 1919 exhibition taking place this coming March. A good many Canadian manufacturers will be represented

FOR the fiscal year ending March, 1914, Canada's exports amounted to $431,000,000, of which $198,000,000 consisted of agricultural products and $57,000,000 of manufactures. For 1918 these exports had increased to $1,540,000,000, of which $567,000,000 consisted of agricultural products and $636,000,000 of manufactures. The enormous increase in the export of manufactures during these four years was due almost entirely to conditions arising out of the war. The urgent demand on the part of the Allies for munitions and war materials of all kinds speeded up to capacity the output of existing factories and called into being scores of new ones. The question of cost of raw material, of labor and of production generally was of minor importance, the main requirements being an ability to deliver the necessary goods in sufficient quantity and without delay.

The finished material was paid for by the Allies out of credits placed at their disposal by the Dominion Government and, later, by the United States Government, and the problem of financing these exports did not fall on the shoulders of the manufacturers themselves. Now when the war is at an end and the production of munitions and other war material has stopped, Canada is faced with the prospect of a reduction of its export trade to pre-war figures. To avoid the consequences of such a drastic reduction, which would be nothing short of calamitous to this country, it will be necessary to look to a market outside of Canada for customers for the peace products of the factories which have been engaged during the last four years in the production of war material. This will be found to be no easy matter, especially in the face of the very keen competition which must be expected from other countries, particularly the United States, Great Britain and France, all of whom are preparing to extend their exports on a gigantic scale.

The question of price will again be an all-important factor. If we are to find customers for our products abroad we must be in a position to offer our goods at prices which compare favorably with those at which our competitors are willing to furnish them, and on terms which are at least equally

favorable to the purchaser as those offered by manufacturers of other countries. It will be found necessary in many cases to give credit to the foreign purchaser. Foreign importers frequently seek time on their purchases, and if our exporters hope to secure orders in countries where it is usual to allow from one to four months on purchases, credit must be granted in accordance with the prevailing custom. It is not necessary, however, for the Canadian exporter to carry this credit load himself. The machinery for financing foreign exports is at the present time more complete than it has ever been and the Canadian chartered banks are equipped and prepared to do their share in the extension of Canada's foreign exports on a peace basis.

Commercial Letters of Credit

There are various methods of financing exports to foreign countries, in all of which the usual credit instruments such as letters of credit, drafts, acceptances, etc., play a part. Before going into details of the various methods which may be employed it would probably be well to give a short description of commercial letters of credit, although probably most Canadian manufacturers are already familiar with them.

A commercial letter of credit is issued by a bank and addressed either to a correspondent bank in another country, in which case it authorizes the latter bank to negotiate the the drafts of the beneficiary (usually the seller of the goods) drawn at a specified term (sight, 30 d/s, 60 d/s, etc.) and up to a stated amount if accompanied by shipping documents (usually bills of lading, insurance certificates and invoices) covering shipment of the goods relative to which the drafts are to be drawn, or it is addressed direct to the beneficiary (the seller of the goods) and in that case authorizes the latter to draw on the issuing bank in the manner described above, on the strength of which authority the beneficiary's bankers will negotiate such drafts. The bank issuing a commercial credit therefore in effect lends its credit (not its funds) to its customer (the buyer of the goods). The latter in turn utilizes this credit by making it available to the foreign shipper. A commercial credit may be issued either in the currency of the country in which the seller of the goods resides or in the currency of the country of the buyer, depending upon the terms of the contract between the buyer and the seller as to whether payment is to be made in dollars or in foreign currency.

How the System Works

The most satisfactory method of financing exports by way of letter of credit, from the point of view of the Canadian seller, is to have the foreign buyer open through his bank a credit with a Canadian bank in dollars in favor of the seller, authorizing the Canadian bank to pay the invoice amount of the transaction upon delivery to them of the shipping documents. In this way the Canadian manufacturer receives immediate payment for his goods and the purchaser takes all the risk of the exchange market. It will be found, however, that this method is one to which the foreign buyer will not agree except in isolated cases. It has, however, in the past too often been insisted upon by Canadian exporters, with the result that considerable business has been lost. Little can be gained in endeavoring to build up a foreign business by insisting upon conditions to which the foreign buyer is not prepared to agree and which are not customary in his market.

Foreign customers are often willing to provide bankers' letters of credit stipulating for drafts to be drawn at three or four months' sight where they are not willing to authorize the drawing of sight drafts. This gives them time to receive and dispose of the relative goods before they have to meet the drafts drawn under the letters of credit when they mature. If the Canadian exporters had themselves to await payment of the long term drafts drawn under commercial credits before they could obtain the relative funds, it would of course inconvenience them financially through the lock-up of their funds, but the Canadian banks are always willing to discount such drafts, thereby enabling the drawers to obtain the proceeds at once.

While a considerable portion of the foreign trade is financed through the medium of commercial letters of credit, it is often the case that the foreign importer is not willing to furnish a credit. If his financial standing is sufficiently high to warrant the Canadian seller to follow this procedure without undue risk, the latter will then reimburse himself for his shipments by drawing a draft direct on the foreign importer, payable at 30, 60 or 90 days' sight, or whatever term is agreed upon, such draft being accompanied by the shipping documents covering the transaction. The draft is then handed to the exporter's bank in Canada with instructions to collect it, surrendering the documents on acceptance or on payment of the draft as the case may be. In the event that the exporter should require to be reimbursed at once for the amount involved, he would request his bank to discount the draft instead of collecting it on his behalf. If a satisfactory bank letter of credit is not provided it is of course doubly necessary for the exporter to satisfy himself in regard to the financial standing of the foreign purchaser, and in this his bank in Canada will assist him. Some of the larger banks have opened special Foreign Departments, whose object, among other things, is the collecting of complete and up-to-date information regarding the standing of the principal importing firms in foreign countries.

Introduction of Dollar Exchange

Before the war the majority of all foreign transactions were expressed in sterling. The London market was the financial centre of the world, and if a New York merchant purchased, say, a shipment of coffee in Brazil, payment would be made almost invariably in pounds sterling, either by the remittance of drafts on London or through the establishing of a commercial credit in sterling through a London bank. Conditions arising out of the war have afforded New York an opportunity to challenge London's supremacy as a financial centre, and as a result "dollar exchange" is now quoted in many foreign cities and a large share of the trade between North and South America is at present financed in dollars through New York.

Whatever form the financing of his export business may take, the Canadian manufacturer may be assured that the banks of Canada are prepared to assist him to the fullest extent in increasing his business abroad. The banks have always been able to finance whatever export business the producing part of Canada's population has created, and there would be no difficulty in handling the much larger volume of this business which it is hopefully believed Canada will produce.

In this connection it should be understood that the banks when relieving the exporters of the necessity of carrying the amount of their sales pending settlement of foreign transactions until maturity of the relative drafts by discounting the latter, in turn can make use of the broad discount markets in the world's financial centres, such as London and Paris, and—since the establishment of the Federal Reserve System—New York, and by selling or re-discounting in these markets the instruments of credit of which they become possessed in connection with the foreign business of their customer, the Canadian banks are able to avoid locking up their resources for long periods.

Preferential Tariffs for British Products

Text of a Memorandum Recently Submitted to the Government by the Canadian Manufacturers Association, Advocating Customs Preferences on British Products Interchanged within the Empire

WHY should merchandise from foreign countries enter British dominions in general at the same rates of duty as apply on inter-Empire shipments of goods produced within the Eempire? That policy does not develop or consolidate our Empire, but does unnecessarily strengthen other great trading nations which systematically pursue this special policy of tariff preferences for their own merchandise when interchanged between their own outlying dominions. Trade between the outside dominions of the United States, in respect to the products of the United States countries, is practically monopolized by their people through the operation of internal preferences. A Canadian manufacturer the other day asked this Association what duty would apply on the product of his factory when shipped into the Philippines. We found that the same product from the United States would enter the Philippines at a lower rate by $1.50 per 200 kilogrammes than that from Canada. These preferences are general between the United States, Alaska, Hawaii, the Philippines, Porto Rico, and the recently acquired Danish West Indies. In Cuba, too, United States commodities enjoy a tariff preference ranging one-fifth to two-fifths lower than the import duties on corresponding products from any other country. The same policy of internal preferences is followed systematically by every great trading nation except the British Empire.

The Dominion of Canada is the pioneer amongst British countries in inaugurating substantially lower customs tariff rates on imports of British than on foreign goods.

For twenty-two years the customs tariff of the Dominion of Canada has provided substantial preferences to importations of British Empire products, averaging one-third lower than the customs dues payable on similar foreign goods. As a general rule, however, other British countries have not reciprocated these preferences, and extend no facility to their traders to import Canadian or other British goods in preference to foreign. New Zealand is the only country which has reciprocated whole-heartedly the spirit of the Canadian preferential tariff system.

Comparison of Exports and Imports

The advantageous effect of this economic arrangement on the trade between these two British countries is evidenced by the following comparison of exports and imports:

Year.	Exports from Canada to New Zealand.	Imports into Canada from New Zealand.
1913	$1,698,093	$1,465,074
1914	1,935,876	1,216,600
1915	2,623,855	2,612,273
1916	3,361,999	2,958,854
1917	3,333,910	2,135,362

British South Africa and certain of the smaller British West Indies grant less substantial preferences to a limited list of British products. But the products of this Dominion receive no preference over foreign goods in the markets of Great Britain, Newfoundland, Jamaica, Egypt, India, Ceylon, Straits Settlements, Australia, and numerous smaller British countries. The steamers which carry goods between Canada and New Zealand also, as a rule, proceed to Australia. Given corresponding preferences between Canada and Australia as exist now in the case of New Zealand, our trade with Australia will rapidly increase as it has done with New Zealand, and Canadian products will largely displace United States products in Australia. Australia now confers substantial preferences on the products of the factories of the United Kingdom; negotiations should ensure that those preferences shall include all British countries just as Canada's preferences are so offered. But the negotiations should be general, so that each British country, in respect to its dutiable list of imports, will give customs preference to British Empire products, comparable to the substantial customs preferences which are offered to Empire products under the tariff of Canada.

The subject of Empire preferences is now under discussion.

The speeches of English statesmen, and of the Premiers of Australia and New Zealand, the report of the committee headed by Lord Balfour of Burleigh, the conclusions of the Paris Economic Conference, appear as outstanding evidences that the present is the time to negotiate and secure action on this subject.

It is significant that the representatives of Australia and New Zealand in the United Kingdom are strongly advocating tariff preferences within the Empire.

A Desirable Fiscal Policy

The noblest aspirations that animate the intellect, for the vitality and honor of one's country, can be satisfied by a system of reasonable tariff preferences within the Empire. To those immersed in commercial projects, the promises seem equally bright. Unquestionably a fiscal policy which would promote the interexchange within the Empire of British commodities would immensely strengthen, develop and consolidate the Empire. At the same time each British country would retain its present control of its own customs tariff.

As regards Canada, under such a system, there would be immediate and extraordinary increases in industrial production. It would ensure the large expansion of Canadian exports on a permanent basis. Before deciding whether or not to establish branch factories in Canada a number of United States industries are waiting for British countries to determine their policy on this subject. Were British preferential tariffs the rule, great numbers of United States industries would have to establish large works in this country in order to hold their export trade with British countries. Other industries would locate here which now are unable to do so because our domestic market is too small to warant the investment. Thus there would follow very heavy expenditures of capital in this country in the construction and equipment of new factories, and the enlargement of others already in operation.

It is perfectly obvious that Canada will not reap any benefits commercially from its twenty-two years' pioneer work in British preferences until this policy, under wise and patriotic statesmanship, is reciprocated throughout the Empire.

We regard this development as necessary at this time to our permanent progress.

In conclusion, it is respectfully submitted that the wonderful advantages to Canada from the adoption of substantial preferences amongst British countries, corresponding to the preferences provided in the tariff of Canada, warrant your Government in exerting its utmost power and influence to secure the adoption of preferential tariffs throughout the whole British Empire.



New Plant of Brunner, Mond Canada, Limited

A Domestic Supply of Soda Ash for Canada

This Material, which has not Hitherto been Manufactured in the Dominion, will now be Produced at a Fine New Plant just Completed at Amherstburg —Absolutely Essential in a Large Proportion of the Manufacturing Processes of the World, its Production in Canada is of Prime Importance

By R. W. BROCK

"VERY soon after the New Year the alkali (soda ash) plant of Brunner, Mond Canada, Limited, at Amhertsburg, Ontario, will be completed and put in operation."

To the general public this statement possibly seems of small significance, but to those acquainted with the actual conditions this paragraph announces an event of exceptional importance to Canada, namely, the erection by a Canadian company of an extensive plant to manufacture, for the first time in Canada, from hitherto unexploited resources of the Dominion, a product of the greatest importance to the development of her commercial and industrial life.

An Immensely Important Product

This product, alkali, to-day ranks second (yielding precedence only to pig iron) in the number and extent of its uses and in its importance as an absolute essential in a large proportion of the manufacturing processes of the world.

The largest amount of alkali is produced in the form of carbonate of soda, generally known as soda ash, and in this form is so widely used that its industrial importance can hardly be over-estimated.

For instance, the processes at present employed in the manufacture of glass and soaps have been built up on the use of soda ash as a principal ingredient to such a degree that an ample, constant and reliable supply of this commodity is absolutely vital to the successful operation of these industries.

In addition to these uses, soda ash enters to almost as great an extent into the manufacture of paper, wood pulp. chemicals, drugs, paints, leather, enamelled ware and cleansers of all kinds, and is also used extensively in the textile industries, in dyeing and metallurgical operations, in the refining of vegetable and mineral oils, in metal working, water softening and laundry operations, and, in fact, in one way or another in almost all modern manufacturing processes, besides its use in almost every household in forms of sal soda, cleansing sodas, washing powders and bicarbonate of soda.

And in the past four years, greater even than the essentially commercial uses mentioned above, has been the call for soda ash to serve as a base for the manufacture of explosives.

Ninety-five per cent. (95%) of the soda ash now produced is manufactured under the process originated by the famous Belgian chemists, Messrs. Solvay, and which is known in their honor as the "Solvay process." This process, which is the one to be employed by Brunner, Mond Canada, Limited, utilizes as the principal raw materials salt, limestone and ammonia.

Up to the present time no soda ash has been manufactured in Canada, and for years the English manufacturers, in addition to supplying the English requirements, have furnished most of the soda ash used in Canada, the balance of her consumption coming from the United States. The Canadian use of soda ash, while small at first, has now reached an estimated annual consumption of between 40,000 and 50,000 tons, *and not one pound* of this great quantity has been *produced* in Canada, and for her entire consumption of this vital commodity, upon the use of which so much of her manufacturing prosperity is based, this great Dominion has been absolutely dependent upon the manufacturers of other countries.

The past four years have vividly shown the absolute necessity for remedying this situation.

War-Time Demand Tremendous

With the outbreak of the war the demand for soda ash in England and the United States increased tremendously, and almost overnight the manufacturers of both countries found themselves confronted with a demand for soda ash for strictly home consumption which exceeded their entire output, leaving nothing to satisfy the requirements of other countries which had previously looked to them for their supply.

Logically, home industries received first consideration, and Canada, with no preparation, was at once confronted with the possibility of a complete shutting off of her supply of soda ash, a situation which undoubtedly would have entailed grave consequences for some of her greatest industries, and would have dealt a very serious blow to her commercial and economic development.

Canada's tremendous industrial expansion, even before the war, had reached a point where an independent and steady supply of this commodity was absolutely necessary, and the war had simply added emphasis to this situation. To cope with this emergency, Brunner, Mond Canada, Limited, was organized, and in March, 1917, the work of constructing this plant was started. The importance of furnishing Canada with her own supply of soda ash has been considered so paramount that, in spite of the unprecedented high cost of materials and labor, and the extraordinary difficulties of construction, raised by war conditions, everything possible has been done to effect the early completion of the plant.

The Site of the New Plant

Amherstburg, Ontario, on the Detroit River, was chosen as the site of the new plant. Material advantages of the first importance, a large quantity of the important raw materials, limestone and salt (natural resources of the Dominion hitherto unexploited), a central location to permit of ready distribution of the product throughout Canada, and ample transportation facilities, all combine to make it a peculiarly favorable location. A tract of land of over 650 acres was secured, and a plant is being built thereon of a capacity to supply the entire Canadian requirements, so engineered and constructed as to permit of readily increased production as the demand warrants.

There has been erected a main building, 170 x 190 feet and ten stories high; a boiler-house, 60 x 144 feet; one of the largest lime kilns in the world (80 feet from the ground to the top); a lime building, 60 x 100 feet; a machine shop and store, 36 x 260 feet; offices, warehouses and other undesignated buildings. In all about 4,000 tons of structural steel have been incorporated in these buildings, while approximately 1,000 men were employed in construction. Taken altogether, it is the most up-to-date and complete soda ash plant in the world, and is, of course, capable of enlargement as the need arises.

There are various other interesting features in connection with the undertaking. For example, to insure a satisfactory water supply, as well as to furnish pure water to the town of Amherstburg, the company has put in a separate pumping station and purification plant. It has also constructed a sewerage system, consisting of a main 5 ft. sewer, 1,600 ft. long, with a 4 ft. lateral 200 feet long. In this, as well as all other details, ample provision has been made to take care of future needs.

The company has made provision for the generation of its own power, installing two 600 k.w. and one 300 k.w. turbo generators to supply electrical requirements, and four 600 h.p. boilers to furnish steam.

The salt required in the industry is obtained in the form of brine from wells three miles distant, and is pumped to the plant. The limestone is taken from the immense quarries on the property, a complete quarry equipment being provided. This will not only take out stone for the company's own requirements, but will also turn out a large amount of crushed stone for commercial purposes.

The welfare of staff and workers, who will number about 400, is being carefully looked after. A first-class little hospital has been erected, there being nothing of the kind in Amherstburg, and a staff clubhouse, with boarding accommodation and dining-room facilities. A mutual benefit society is being formed, supported by equal payments by the company and the men, which will have a fund from which workmen will be assisted when they are taken ill. This fund in such cases will provide a fixed sum per week and all medical and hospital service.

Amherstburg has been rejuvenated by the advent of the industry. Whereas when the work of construction was started there were 100 vacant houses in the town, to-day there isn't even a shack unoccupied, and the town is humming with business. The importance of the industry, not alone to Amherstburg, but to the whole country, is further attested by the fact that the Essex Terminal Railway has deemed it desirable to extend its line eleven miles from Ojibway to Amherstburg, at a cost of $450,000.

Personnel of the Directorate

It may be of interest to mention the men who are behind this new undertaking. The President of the company is Mr. E. N. Trump, of Syracuse, N.Y.; the Vice-Presidents, Sir Edmund Walker, Toronto, and Mr. A. H. Green, Detroit. Mr. Wallace Campbell, Syracuse, is Secretary-Treasurer. The other directors are Mr. Robert Mond, Northwich, England; Judge N. L. Miller, Syracuse, N.Y., and Mr. Henry Glendinning, Northwich, England. The Manager is Mr. G. S. Rutherford, who has been in charge of construction and will continue as manager of the plant. Mr. Rutherford is a Canadian, born in Montreal, and graduated from McGill University.

As announced, the plant will start running about the first of the year, and Canadian users of soda ash can look to it for their 1919 supply. The capacity is such that it will be able to take care of the total Canadian consumption.

The keynote of the industry, it might be stated in conclusion, is to develop from the hitherto unexploited natural resources of the Dominion a product essential to many industries and which hitherto has not been manufactured in Canada. It will be a Canadian industry, employing Canadian labor almost entirely and utilizing Canadian resources.

PRICE-CUTTING DOESN'T PAY

Why any manufacturer, large or small, should want to cut prices at the present time is beyond the understanding of the average business man. The available supply of raw material is smaller than it has been at any other period in the world's history. As soon as shipping facilities can be secured the markets of Europe will absorb every pound of basic material which we can spare, at remunerative prices. Manufactured goods will also be in universal demand. Therefore the cutting of prices at this particular time is nothing short of commercial suicide. It is possible that some concerns may be in a tight financial position, that in order to restore cash balances they may be tempted to dispose of finished products at reduced figures. We believe that if such houses would submit a true statement of their affairs to their banks they could secure the funds needed to tide them over at a normal rate of interest. The increase in value of their merchandise would probably be greater than the total of interest to be paid. In addition, they would retain the good will of the business world. A firm which indulges in price-cutting once cannot retain its trade in normal conditions. As soon as it is compelled to sell at regular prices it will lose the customers attracted by its bargain sales. Business is entitled to legitimate profit. The man who sells goods below cost is inviting the dislike of his competitors and courting bankruptcy.—*Manufacturers' News.*

Power,—Canada's Wonderful Opportunity

Successful Competition in the Commercial World Dependent Largely on Resourceful Use of Electric Power—Consideration of Measures by which it May be Readily Available in Dependable Quantities at Low Rates, a Matter of Vital Importance

By A. M. BEALE, A.M.E.I.C.

Illustrations by courtesy Dominion Water Powers Branch

THE return of peace will find most of the nations of the world burdened with debt. Vast areas devastated by war will have to be completely rehabilitated and for a considerable period at least will be non-productive. Belligerent countries will have to make renewals and replacements in many directions whence material has been diverted for war requirements. Finally the war has brought about the consumption of natural resources on such a vast scale that it will be essential to see to it that in future our resources are used to the best advantage.

It is obvious, therefore, that, if the world is to make a speedy recovery, there must be a quick industrial revival and the country most prompt to produce in excess of its needs will be able to dispose of its surplus in foreign markets to the best advantage, and being first in the field will be in a position to build up an export trade, whereby its national credit will be maintained, its national obligations met and imports requisite for its needs, comfort and general well-being secured. Canada should be in a position to be early in the field, but must look to her industrial efficiency, if she is to progress in face of the keen competition which will develop amongst the nations striving to regain their sadly impaired prosperity.

"Motive Power" in the words of Sir Dugald Clerk, the eminent British Engineer "is of fundamental importance to industrial civilization." It has been pointed out that the development of power resources has gone hand in hand with civilization, lack of mechanical sources of energy to replace manual labor or the neglect of such sources has always retarded progress, as for example, in China, whereas the discovery or development of power has led to prompt industrial progress. The early location of the iron and and woolen industries in Yorkshire is attributed to the existence there of water power, while Great Britain's commercial supremacy is in a great measure due to the discovery and exploitation of her coal, which placed large quantities of power at her disposal.



Kakabeka Falls

A beautiful waterfall on the Kaministiquia River in New Ontario

The world war bringing with it a tremendous speeding up of industry in the manufacture and transportation of munitions has taxed the power resources of every nation, the immediate cause of fuel and consequent power shortage has varied, but the result has been the same, namely, an almost feverish energy to attain greater efficiency in the use of existing power resources and in the search for and investigation of new ones. Every country, of which we have news, is studying its power resources not so much from the standpoint of present needs but rather for those of the future.

In Great Britain proposals have been set forth for vast central station fuel-power plants at strategic points for the



Lower Bonnington Falls
A fine power site on the Kootenay River near Nelson, B.C.

supply of power for all industries, so as to secure a more efficient use of coal, the extraction of all by-products is being urged not merely on account of their value which is enormous, but also because a cheap fuel will thereby become available to reduce the cost of power. A recent report by the Committee on Electrical Trades appointed by the British Board of Trade states—" The prosperity of industries depends largely on cheap energy for driving machinery, and even a fractional reduction in price is of importance in determining the ability of manufacturers to compete in the world's markets." Stock too, is being taken of the water powers of the British Isles.

A Conjoint Board of Scientific Societies, acting under the auspices of the Imperial Government and recruited from the highest ranks of technical men in Great Britain is studying the resources of the Empire. Recognizing the importance of water-power a strong sub-committee was appointed to take stock of this resource, and, thanks to the co-operation of the Dominions, a large amount of valuable data has been secured and steps taken towards a fuller knowledge and appreciation of the water power resources of the Empire. Whilst Canada leads, New Guinea, New Zealand, Tasmania may be instanced amongst others of the British Dominions as having great and vastly important water-power possibilities.

It may not be amiss to draw attention here to the Tata Hydro-Electric undertaking in India which, to those unfamiliar with tropical conditions, is truly remarkable. It is a scheme to provide approximately 100,000 horse-power for 3,600 hours per year from valleys which have hitherto been dry for nine months of the year. This undertaking depends for its water supply on the storage of the monsoon rains which it is stated averaged, over a period of thirty-four years, 3¼ inches per day, for forty-five days. This scheme, as yet incomplete, is nevertheless in operation. It was financed in India, and during the first year of operation earned and paid a dividend on its full capital.

Amongst our allies the United States, faced with similar fuel conditions to ourselves, is taking active steps to mobilize her power resources but is handicapped, as are some parts of Canada, by unsatisfactory water-power laws.

Water-power is a salient feature in the contrast between the United States-Canadian boundary and the frontiers of Europe. To a traveller journeying along the frontiers of Continental Europe in times of peace, the most conspicuous handiwork of man would probably be the mighty fortresses designed for defence against warlike aggression, these must always serve to remind the frontier dwellers that they live in the shadow of a continual war-menace. Here, on the contrary, the handiwork of man has been devoted to the erection of undefended bridges and canals along boundary waters, and of hydro-electric stations, which attract dwellers to the border regions that they may mutually enjoy a natural industrial asset, and must remind them that they live in the light, of what promises to be, a perpetual peace.

France until the war an importer of one-third of her coal, was faced by the loss to the enemy of a considerable proportion of her own mines and the rising price and difficulty of transportation for imported fuel. Promptly and in spite of many difficulties she has proceeded with hydro developments and by the end of this year will have 1,100,000 h.p. developed, an increase of 450,000 h.p. since 1910, two thirds of which has been secured since war broke out.



Ocean Falls
An important power on Link River in British Columbia

Italy lacking coal is an excellent field for water-power development, and through the famous A. E. G.* the Germans secured a strangle-hold on Italian industry, and by 1910, 515,000 h.p. was developed. Since the outbreak of war the Italian Government has not merely broken the Teutonic hold, but has proceeded with an active water-power policy. A recent news item states that concessions for 208,000 h. p. were granted in 1917 and that in December, 1917, there were 218 requests for concessions estimated at 816,000 h.p. in course of examination.

In Russia the Provisional Government has recently appointed a Water - Power Committee with absolute control over the development of all water-power schemes in the Empire exceeding 300 h.p. Neutral countries are well aware that they will have to compete in a much keener market after the war and we see signs of stimulated activities in the Scandinavian countries.

A recent despatch from Mr. Albert Halstead, the United States Consul General at Stockholm, states that the present capacity of water plants in *Sweden* is about four million turbine horse-power, of which one million was completed during 1917. This is such an enormous advance from the figure of 850,000 turbine horse-power reported by Sven Lubeck in 1915, that one is inclined to doubt the accuracy of Mr. Halstead's figures, particularly since former estimates only credit Sweden with four and one-half million horse-power available. Mr. Halstead states that 92 per cent. of the power is being used for the larger industries and 8 per cent. for illumination and the lesser industries.

Information collected during 1915 by the Dominion Water-Power Branch indicated that *Norway* had five and one-half million water horse-power available, of which 1,120,000 turbine horse-power was developed, 400,000 horse-power being utilized for nitrogen fixation; it would be interesting to learn if progress in Norway has been on the same scale as that reported for Sweden. The Governments of both countries are rendering every possible encouragement in the development and use of "White Coal."



Ouiatchouan Falls

A picturesque torrent dropping 236 feet and located in the Province of Quebec

Denmark has practically no water-power, and it is interesting to note, as indicating the national importance of power, that a suggestion has been put forward for a triangular agreement whereby Norway and Sweden should export hydro-electric power to Denmark, Norway to make up any power deficiencies caused thereby in Southern Sweden where the water powers are less extensive than in the North. Barcelona, the "Manchester of Spain," a city of 300,000 is replacing steam power by hydro-electricity, and a Canadian Company has already completed a large portion of an extensive system of reservoirs and hydro-electric stations on the Noguera Pallaresa and Segre Rivers. A recent number of the Journal of the Royal Society of Arts reports the formation

* The Allgemeine Elektricitats Gesellschaft of Berlin.

of a powerful company to exploit the Douro Falls on the Portugal-Spain frontier where 350,000 horsepower is said to be available.

Switzerland has been called the "Industrial Annex" of Germany, and in 1910 twenty-five per cent. of her two million available water horse-power had already been developed. More recent information is not available, nevertheless, the mere fact that thirty-two horsepower had been developed in 1910 for each square mile of area is sufficient indication of the economic importance of Swiss water powers.

Concerning enemy countries, information filters through from time to time, and in July last the British Board of Trade Journal contained a special article on the proposals for the centralization and development of electric power supply in *Germany* as part of the reconstruction policy after the war. In Wurtemburg the state is to participate in the administration of a scheme for the consolidation of all electricity works for the purpose of the uniform distribution of current. The Saxon Second Chamber in December, 1917, voted forty million marks for developing State Electricity Works on condition that light and power should be furnished at cheap rates for industrial and commercial use. In Bavaria a syndicate has been formed to exploit the water-power on the Lower Inn backed by the Deutsche Bank and native Bavarian financial and industrial interests. This syndicate has two million marks at its disposal for preliminary work, and it is estimated that the complete scheme will require 150 million marks. Another scheme, backed by the A. E. G., of Berlin, proposes a development of Bavarian water power to be begun three months after the conclusion of peace, the estimated output being over twenty-one million Kilowatt hours. Prussia seems to be committed to the policy of State control of electricity supply.

The Policy in Austria

In *Austria* the Government announces the establishment of a Special Department of the Ministry of Public Works to control the electrical system which is to be augmented by a great development of water-power. This system is to be centralized and future concessionaires, whether private or public, made to conform to the general scheme. In *Hungary* similar legislation is in preparation.

The above summary sets out briefly what is taking place in other countries and renders it quite obvious that mechanical energy is the life-blood of the national industrial body, and that the nation, which has a dependable source of power capable of producing energy cheaper than other nations, will have a tremendous advantage. It behooves Canada, therefore, to take steps, and quickly, to assure her industries of adequate supply of cheap power. To quote again from the British Board of Trade report, we find the recommendation,—That Government should recognize the dependence of the State, both from military and industrial standpoints upon the supply of electrical energy regarded as a 'Key Industry.'"

The Conquests of Electricity

In the course of little more than a generation, electricity has, by a series of swift, offensive movements, made a conquest of the lighting, heating, transport and industrial power fields, and seems likely, for most purposes, to displace other forms of mechanical energy. As successful competition in the commercial world depends very largely upon the resourceful use of electric power, whether obtained from fuel or water power, the consideration of measures by which it may be readily available in dependable quantities and at low rates, is a matter of vital importance, as affecting the position of Canada in the approaching period of reconstruction.

Until the organization of the Dominion Power Board, no adequate attempt has been made to mobilize for the general advantage of Canada, the various Dominion and Provincial organizations having to do with the administration and the investigation of the fuel and power resources of the Dominion. In co-ordinating and directing the efforts of these various organizations, the board has a noble opportunity for rendering national service. Composed as it is, of trained and experienced departmental engineers having the confidence of the public, and with an aggressive and constructive Chairman in the Honorable Arthur Meighen, the Board should achieve results of tremendous importance, not only to Canada, but to the Empire at large.

New Spinning and Worsted Mill for Toronto

Aked & Co., Limited, Start Operations

AN interesting addition to the industrial establishments of Toronto started operations recently. This is the worsted and spinning mill of Aked & Company, Limited, located at the corner of Dupont Street and Ossington Avenue.

The main factory building, which is completed and in operation, is 100 x 100 feet, two storeys, reinforced concrete construction, the sides being entirely encased in steel sash, fitted with wire glass, giving unexcelled light in the interior, and with sprinkler system installed, making an absolutely fireproof building.

The policy of the company has been to equip the plant with the most modern and labor-saving machinery. All equipment is of English manufacture, and the capacity of the plant is 10,000 lbs. of worsted yarns per week. One of the features of the equipment is the individual drive system, all machines being run individually by Westinghouse motors, with chain drives on the main machines. The company manufacture yarns for hand knitting; machine knit socks; sweaters, etc., and also yarns for weaving, nothing but pure wool being used in the plant. Mr. T. O. Aked, the president and managing director, was born in Crosshills, Yorkshire, England, the son of James Aked, a prominent English woollen merchant, He spent some years in the Bradford Technical College, studying scientific construction of wool, and from there went to the employ of his father. For the past eight years he had charge of the St. Thomas plant of the Monarch Knitting Company. Mr. Aked's natural abilities along mechanical lines have resulted in the Aked-Prince-Smith Patent Flyer Doffer Spinning Frame which has now been installed in all the larger industries in England.

Mr. Aked has for his works manager Mr. Cyril S. Jackson, formerly foreman of the spinning department of the St. Thomas plant of the Monarch Knitting Company. Mr. Thomas had over twenty years' experience in several of the leading textile mills of England prior to his coming to Canada, in addition to several years' course at the Keighley Technical Institute.

A Cost System of Universal Application

Definition of a System by which the Cost of Making and Marketing Factory Products can be Correctly Ascertained—Ninety out of Every Hundred Manufacturing Businesses do not Know Accurately What Their Products Cost to Manufacture and Sell

By JOHN C. KIRKWOOD

IN a manufacturing business where two or more distinct lines are produced, it may, and probably will, be necessary to know what each separate product costs (1) to manufacture and (2) to sell.

The primary or basic cost of a manufactured product consists of the value of the materials entering into it, plus the value of the time of human and machine labor required for its fabrication. This primary or basic cost becomes increased by other cost factors, known as overhead. To this true or inventory cost must be added (1) the expense of selling the product and (2) the amount of profit required.

In what follows the aim will be to define a cost system, of universal application, by which the cost of making and marketing factory products can be correctly ascertained.

The Factors of Cost

Stated briefly and simply the costs of making and selling a factory product are:

1. The cost of *materials*.
2. The cost of the *productive or direct labor*, human and machine, required for the fabrication of materials into a marketable merchandise.
3. *Overhead expenses*, consisting of rent if and when rent is paid, rates and taxes, insurance, light, fuel and power, administrative, executive and clerical labor, sundry miscellaneous operating expenses, losses, depreciation, interest paid on borrowed money.
4. *Selling costs*, consisting of salaries, commissions and allowances paid salesmen, their travelling expenses, publicity in all its forms, delivery costs.
5. *Profit* desired or required.

If and when these several groups of costs are added up, for a definite period, say, the calendar year, and if and when applied to the business as a whole or any department of it, a manufacturer can know his costs of production and selling, for his business as a whole, or for any particular product.

Let us now examine each of these groups of costs more minutely, beginning with the cost of materials.

The Costs of Materials

We shall assume that the manufacturing business is departmentized, simply, if not thoroughly. One obvious and primary department is a purchasing department. To this department all materials, as received, will be charged; and, in turn, will be charged to departments supplied. In this way each department can know just what amount and value of materials it receives in the calendar year.

The invoice value of these supplied materials may, and probably will, vary week by week, or month by month. For example, the inventory prices of the leathers consumed by the women's footwear department of a boot and shoe manufacturing business may show many and wide variations in the course of the year; which variations or fluctuations may not alter the manufacturer's selling prices of his footwear, which selling prices may remain unchanged for an entire season.

The amount of materials, measured by weight or quantity, required to produce a particular product or unit of product will be indicated on or in a docket card or envelope. This docket card or envelope will relate to a definite job—the manufacture of a specified quantity of the product to be made, and will record progressively the amount and value of materials and labor, human and machine, consumed in the manufacturing processes. Both human and machine labor will have known hour values. Thus the value or cost of the product being fabricated can be calculated at any stage of its progress towards completion—this from the docket card or envelope.

The value or cost of the actual fabrication of the product—of materials and labor—as shown by the docket card or envelope, will, when divided by the number of units of the product made, give the cost per unit.

The Cost of Overhead

To the primary or manufacturing cost, as ascertained by the docket card or envelope records, must be added a due proportion of the general expenses of operation—such as rent, fixed expense, indirect labor, light, fuel and power, losses, depreciation. The proportion or percentage of these aggregated expenses to be added to the cost of fabricated or manufactured materials will have to be determined more or less arbitrarily, but none the less fairly, and this can be done if and when the general costs of doing business are fully and methodically recorded, according to a well-conceived cost-of-operating system.

Looking at a manufacturing business as a whole, its overhead costs are as follows:

1. *Rent*, if and when rent is paid.
2. *Fixed expense*:
   - (*a*) Rates, taxes, and insurance (fire, casualty, partnership, etc.)
   - (*b*) Light, fuel and power.
3. *Labor*:
   - (*a*) Salaries to principals.
   - (*b*) Salaries to executives, bookkeepers, clerks and stenographers.
   - (*c*) Salaries or wages to superintendents, porters, truckers, shippers, watchmen, caretakers.

NOTE—The costs of collection may be heavy enough to call for separate recording.

4. *Miscellaneous*:
   - (*a*) Stationery and postage.
   - (*b*) Telephone and telegraph.
   - (*c*) Repairs and renovation.
   - (*d*) Various incidental sundry expenses not comprehended under other heads.
   - (*e*) Travelling expenses connected with administrative, executive, and purchasing phases of the business.
5. *Losses*:
   - (*a*) Due to bad debts, petty thefts, special allowances, claims, etc.
   - (*b*) Due to spoilage, shrinkage, shortage, leakage, damage, weather conditions.

NOTE—Extraordinary or excessive losses, due to fire, theft or embezzlement, unfortunate purchases or investments, bad debts, neglect, etc., should be charged at the end of the year into the profit and loss account. That is, they are not to be reckoned as a cost factor in the determination of prices.

6. *Depreciation*:
   (*a*) On plant and equipment—a calculated percentage of original value, probably determined by the "life" of both.
   (*b*) On furniture and fixtures—a calculated percentage of original value based on the probable "life" of each separate article inventoried.
7. *Interest*, paid on borrowed money and overdue trade accounts.
8. *Legal expense*:
   (*a*) For patents or protection of patents.
   (*b*) Miscellaneous legal expenses.

NOTE—Extraordinary and exceptional legal costs should be charged, at the end of the year, into the profit and loss account.

These eight groups of costs, representing overhead, are to be considered in relation to total sales for the factory as a whole—this to cast them in the form of a percentage. For example, if these overhead costs, aggregated, amount to $50,000, and total sales for the factory amount to $2,000,000, then the overhead costs are 2½ per cent. of total sales. Expressed fractionally, these overhead costs are one-fortieth of total sales, thus:

$$\frac{\$50{,}000}{\$2{,}000{,}000} = \frac{1}{40} = 2\tfrac{1}{2}\%$$

Converting Percentage on Sales to Percentage on Costs

It is to be noted that this 2½ per cent. is a percentage of *sales*. The question arises: What is the equivalent percentage to add to the *cost* price of goods, costs, in this instance, representing the bare cost of the fabricated materials (cost of materials plus the value of the direct or productive labor required to make them a marketable product). This conversion operation—converting a percentage as reckoned on *sales* into the equivalent percentage as reckoned on *cost*—is indicated by the following formula:

$$\frac{\text{Percentage as reckoned on sales} \times 100}{100 - \text{percentage as reckoned on sales}}$$

In common practice the operation consists in setting down, in decimal form, the percentages, as reckoned on sales, with ciphers added, and dividing by the difference between this per cent. and 100. For example, when the percentage as reckoned on *sales* is 5 per cent., the equivalent percentage, as reckoned on *cost*, is

95)500(5.26=right percentage to add to cost.

Again, if the percentage, as reckoned on sales, requiring to be converted, is 2½ per cent., then the calculation becomes:

975)25,000(2.56=right percentage to add to *cost*.

NOTE—The underscored figures in the above illustrative and representative calculations make 100.

Similarly, this method is to be pursued in regard to all other percentages.

The Distribution of Overhead Costs

Applying overhead costs to a particular product—the product of a department—the management of the factory must distribute the total overhead costs over the several departments, calculating the several amounts as justly as possible. This distribution process will be made clearer by an illustrative example.

We shall suppose that a factory makes three principal products, and, consequently, is divided into three distinct departments, which we shall designate "A," "B," and "C." We shall assume, further, that the total annual overhead costs for the business as a whole are $50,000, and that the total annual sales are $2,000,000, divided as follows:

	Total annual sales
"A" Department	$800,000
"B" Department	700,000
"C" Department	500,000
	$2,000,000

We shall assume that the management, after careful enquiry, has determined that of the $50,000, overhead costs:

	Shall be charged with
"A" Department	$25,000
"B" Department	15,000
"C" Department	10,000
	$50,000

Then it becomes clear that:

The annual overhead cost of operating	As reckoned on annual *sales* is	And that the equivalent converted percentage to add to *cost* is
"A" Department	$\frac{\$25{,}000}{\$800{,}000} = 3.12\%$	3.22%
"B" Department	$\frac{\$15{,}000}{\$700{,}000} = 2.14\%$	2.18%
"C" Department	$\frac{\$10{,}000}{\$500{,}000} = 2.00\%$	2.04%

Up to this point we have learned how to calculate:
1. The cost of fabricating materials.
2. The percentage of overhead to be added to the cost of fabricated materials to ascertain their true inventory cost—as the product stands in the factory or warehouse.

Our next step will be to ascertain the amount of percentage to add for selling expenses and profit.

The Cost Factor of Selling Expenses

First we shall consider in detail the factors of selling expense. Selling expense will include:

1. *Salesmen's remuneration*:
   (*a*) Salaries or commissions or both paid salesmen.
   (*b*) Their travelling expenses, allowances for entertainment, telegraph and telephone charges, etc.

NOTE—If salesmen perform administrative or executive duties in addition to selling, their remuneration ought to be divided into two parts, this for record-keeping purposes, one part being charged under the heading of labor in the cost of overhead charges, and the other part under the heading above, salesmen's remuneration.

2. *Publicity*:
   (*a*) Salaries or commissions or both, paid salesmen. assisting him in the advertising department.

NOTE—If the services of the advertising manager and his assistants are employed, in part, in general administrative and executive work, the right proportion of their remuneration should be charged as overhead, and the remainder as selling expense.

   (*b*) Printed matter used for publicity or selling purposes—catalogues, booklets, leaflets, stationery, etc.
   (*c*) Postage, telegraph and telephone charges, used in or by or for the advertising department.
   (*d*) Newspaper, magazine, billboard, street car and other forms of advertising.
   (*e*) Donations and subscriptions made and which may be regarded as publicity expenditures.
   (*f*) Sampling, window cards and cut-outs, calendars, novelties and allowances made distributors in the name of advertising.

3. *Delivery*:
   (*a*) Wages and allowances paid those employed exclusively for the delivery of sold goods.

NOTE—That portion of the time or service of other members of the staff devoted to delivery should be charged under the head of delivery.

   (*b*) Upkeep of horses and vehicles, trucks and garage, used for delivery of sold goods.

NOTE—The portion of this item of expense fairly chargeable under overhead, for the carriage of materials to be fabricated from station, freight sheds, docks or warehouses to factory, should be charged under overhead. Here should be charged insurance premiums paid in connection with delivery equipment and service.

(c) Incidental expenses connected with the delivery of sold goods, such as wrapping and packing, prepaid carriage charges, duty and insurance.

These three groups of selling expenses should not be figured into the warehouse or inventory value of manufactures. They are to be added only when the correct selling prices are to be determined.

As in the case of overhead costs, selling costs should be reduced to percentages, after the same manner as are overhead expenses. For the sake of illustration, we shall employ the case already used, namely, the case of a factory with total annual sales of $2,000,000, which sales are made up, it will be recalled, as follows:

	Annual sales
"A" Department	$800,000
"B" Department	700,000
"C" Department	500,000

We shall assume that the total selling expenses or costs are double the costs of overhead, or $100,000. Also, we shall assume that these costs, on analysis, in relation to each of the three departments, "A," "B," and "C," are found to be:

	Cost of selling
"A" Department	$45,000
"B" Department	30,000
"C" Department	25,000

Our next step will be to reduce these selling costs to percentages, in relation to the sales of each department, and to convert these percentages, as reckoned on *sales*, into equivalent percentages as reckoned on *cost*. Thus we have the following:

Annual cost of selling the factory products of	Are in the form of a percentage as reckoned on *sales*	Which percentage, converted into the equivalent percentage as reckoned on *cost*, is
"A" Department	$\frac{\$45,000}{\$800,000} = 5.62\%$	5.96%
"B" Department	$\frac{\$30,000}{\$700,000} = 4.28\%$	4.47%
"C" Department	$\frac{\$25,000}{\$500,000} = 5.00\%$	5.26%

Thus far, in our examination of costs, we have defined:

1. The cost of the manufacturing materials into marketable merchandise.
2. The percentage addition on account of overhead.
3. The percentage addition on account of selling expense.

There remains now to be considered the fourth and final factor of cost, namely, the profit desired or required.

The Cost Factor of Profit

In devising the correct selling price, provision must be made for an adequate profit. The measure of this profit may be a percentage of capital or a percentage of sales. If and when reckoned on capital, the profit should be at least five per cent.—probably six per cent.—on the invested capital, or the capital actually employed in the business. Capital is entitled to an earning or wage at least equal to what it can earn if invested in first-class mortgages or bonds.

Let us say, then, that the minimum profit on the year's business will be six per cent. of the capital employed.

The capital employed may be represented by the money derived from sale of bonds, of preference shares and of common stock; or it may be partners' capital.

The interest or dividends due on bond issues and on preference shares should be a minimum annual objective. If superior profits—in excess of what are required to pay dividends due on bond issues and preference shares—are earned, then they will become available for a dividend on common stock, or for the Reserve Fund.

Profits in Percentage Form

Let us go back once more to the example we have been using for the purposes of illustration, namely, the case of a business with annual sales of $2,000,000. We shall assume that the capital invested or employed in this business is $500,000. Granting that at least six per cent. should be earned on this capital, as a dividend due those who have provided the capital, we have a minimum profit objective of $30,000—this to be made on sales of $2,000,000. Putting this profit objective in the form of a percentage (1) on sales, and (2) on cost, we have the following:

A profit objective of	On annual sales of	Represents a percentage reckoned on *sales* of	Or a percentage reckoned on *cost* of
$30,000	$2,000,000	1.50%	1.52%

We are now in a position to calculate, in the suppositious illustrative case which we have been using, the correct selling price.

The Correct Selling Price

In this suppositious case, namely, of a business of three producing departments, designated "A," "B," and "C," we have percentages to add to the cost of fabricated or manufactured materials as follows:

To be added to the basic cost of the fabricated materials	Department "A"	Department "B"	Department "C"
For overhead	3.44%	2.18%	2.04%
For selling expense	5.96%	4.47%	5.26%
For profits	1.52%	1.52%	1.52%
Total	10.92%	8.17%	8.82%

Adding these percentages to the basic cost of the fabricated materials produced in departments "A," "B," and "C," to obtain the correct selling prices, and assuming that the basic costs per unit of sale, of the products of departments "A," "B," and "C" are:

For Department "A"	$4.62
For Department "B"	2.17
For Department "C"	11.59

then the correct selling prices will be:

Product of	Basic or primary cost per unit of product	Percentage to be added	Giving the right selling price to be
Department "A"	$4.62	10.70%	$5.11
Department "B"	2.17	8.17%	2.35
Department "C"	11.59	8.82%	12.61

The foregoing method of ascertaining or calculating costs is applicable to every kind of manufacturing business, and to any number of departments. If and when the cost factors of (1) overhead, (2) selling expense, and (3) profit required, have been ascertained, in percentage form, as reckoned on cost, the manufacturer can know just what percentage should be added to the cost of materials, plus the cost of the direct or productive labor required in their manufacture into their market forms, to give him a right or safe selling price.

Sales as a Starting Point

It is to be noted that the percentage calculations are reckoned first, in relation to sales, and then converted into equivalent percentages on *costs*. The sales records forming the basis of calculations are always past records, it being assumed that past selling history or experience can, in most cases and generally, be taken as a dependable index to the selling period or achievements lying immediately ahead. In the illustrative example used in the foregoing, annual sales and annual expenses have been employed to determine proper percentage additions. It will be clear, however, that in some cases, and in some years, previous yearly history and records

(*Concluded on page* 226.)

Put Power Behind

"Made in Canada"

There is only ***one*** way to make "Made in Canada" a real selling force, and that is to put QUALITY ***into*** the article before you put "Made in Canada" ***on*** it.

"Made in Sheffield" on a knife means something very definite; so does "Paris" on a gown; "Worcester" on porcelain, and "Scotland" applied to woolens.

The words, "Made in Canada," stamped on every

Gillette
Safety Razor

and every Gillette Blade, carry a tangible message that Canada is manufacturing up to a ***quality*** standard; and the phrase is gaining power throughout the world, for in the last two years we have shipped Gillette Razors and Blades to all the larger cities of the five continents.

The Gillette Safety Razor Co.
of Canada, Limited
Office and Factory: 65-73 St. Alexander Street
MONTREAL



World Markets

PREVIOUS to the War, we supplied the Canadian demand only with Gillette Razors and Blades. To-day, soldiers are returning home to the uttermost parts of the Empire, from Hong Kong around the world to New Zealand, with Gillette Razors, ***Made in Canada.***

The demand that their enthusiasm will create for the Canadian-made Gillette, can be met properly, thus laying a firm foundation for World Markets.

Planning for Peace Trade

Even when War demands were pressing most heavily upon us, we planned first for the Future, and insisted upon Quality before we conceded Quantity.

So that we start the year 1919 with ever-widening markets, increased capacity, the hearty goodwill of consumers and of the trade throughout the world. We have healthy Optimism, and the firm resolve to make Canada proud of the Canadian-made Gillette.

The Gillette Safety Razor Co.
of Canada, Limited

Office and Factory: 65-73 St. Alexander Street

MONTREAL

MADE IN CANADA

TRADE Gillette MARK

KNOWN THE WORLD OVER



More Gillettes were used by the Allied Armies than all other makes of razors put together.

may not have safe applications for the following year. Thus, if and when costs of operation—overhead and selling—rise sharply, due to higher wages and higher prices of many other cost factors, the determination of right costs may require frequent or close-up calculation. It may be that, instead of taking the history and records of the preceding twelve months as the basis of calculations, the history and records of one or two months back will have to be employed. In such a case, the calculation process will be identical as to method as in the case of yearly records.

This will be made clear by the use of an illustrative example. We shall suppose that—

1. The sales of one or two months back, divided according to departments, were:

"A" Department	$100,000
"B" Department	90,000
"C" Department	60,000
	$250,000

2. The overhead expenses for the same period, distributed among the departments, were:

"A" Department	$3,000
"B" Department	2,200
"C" Department	1,800
	$7,000

3. The selling expenses, for the same period, according to departments, were:

"A" Department	$6,500
"B" Department	4,000
"C" Department	3,500
	$14,000

4. Profit required—proportion of yearly profit on capital arrived at, $3,000.

Also, we shall assume that the basic cost of a unit of product (materials plus productive labor) in the three departments, is:—

"A" Department	$5.45
"B" Department	3.39
"C" Department	7.63

With these figures for bases, we have the following (ascertained by pursuing the calculation processes previously defined)—

	Basic cost per unit	Add for overhead expense	Add for selling expense	Add for profit	Thus giving correct selling price as
"A" Dept.	$5.45	3.09%	6.95%	1.21%	$6.06
"B" Dept.	3.89	2.50%	4.65%	1.21%	4.21
"C" Dept.	7.63	3.09%	6.20%	1.21%	8.43

These calculations give the correct selling price—the minimum selling price necessary to assure the recovery of all costs and the desired profit. It may be, however, that a higher price can be obtained for the product than the minimum necessary price, in which case sales will be greater, and profits likewise.

Every Business Needs a Sound Cost System

It is needless to argue the point that a sound and revealing cost system, as applied to a business as a whole, or to its departments, is essential if the business and its departments are to be operated safely and profitably. Yet the fact stands that 90 out of every 100 manufacturing businesses do not know accurately what their products cost to manufacture and sell; that is, they know neither the true or factory cost of their products, nor the minimum price at which they must be sold to assure a recovery of all costs, plus the required profit. This costly and unnecessary ignorance is due, in most instances, to ignorance of (1) the factors of cost, and (2) how to instal and operate a sound cost system. As stated at the beginning of this article, the aim has been to define a cost system of universal application, by which the cost of making and marketing factory products can be correctly ascertained. Principles and practices have been defined and illustrated, in the hope that they will be studied and employed by every manufacturer, large and small, who seeks to run his business, as a whole and as to departments, on the basis of complete knowledge of costs and right selling prices.

What the U. S. is Doing to Get Russian Trade

By HON. VANCE C. McCORMICK
Chairman, War Trade Board, Washington

THE War Trade Board of the United States Russian Bureau, Incorporated, is a company which has been organized by the War Trade Board at the direction of the President for the purpose of helping the Russians to help themselves in stabilizing the economic situation in Russia. It has a capital stock of $5,000,000, all of which has been issued and fully paid in cash out of Government funds. The stock is owned in its entirety by the U. S. Government.

The company will engage in the business of exporting to Russia and Siberia agricultural implements, shoes, clothing, and other commodities which the Russian population need, bringing back Russian and Siberian raw materials in return. The company thus is intended to aid in supplying the needs of the people of Russia, in encouraging Russian production and trade, and assisting in the marketing of Russian products in America and their exchange for American goods. One of the chief objects which the Company will have in view will be the encouragement of private capital to engage in trade in Russia and Siberia as shipping becomes available for the purpose. Its policy will be to cooperate with, encourage, and promote such trade with Russia as will assist in the rehabilitation of her economic life, and to cover by its direct operations only such portions of the field as cannot at present be served readily by private enterprise.

The Company has already begun the transaction of business by the dispatch of three vessels from the Pacific Coast to Vladivostok carrying commodities which its representative in Siberia has designated as being most urgently needed there. By addressing the Russian Bureau, persons interested in Russian trade may receive more detailed information as to the commodities most needed by Russia, and the commodities likely to be available for export from Russia. Additional vessels will from time to time be scheduled, and shippers are urged to file applications for licenses to export to Russia such commodities as they know to be needed.

The Head Office of the Russian Bureau is in the War Trade Board Building, at Washington, D.C. The Board of Directors of the Company consists of the members of the War Trade Board, Hon. Vance C. McCormick, Chairman of the War Trade Board, is President of the Company, John Foster Dulles is Secretary and Treasurer, and Henry B. Van Sinderen is Acting Manager. The Directors are Vance C. McCormick, Thos. L. Chadbourne, Jr., Edwin F. Gay, Albert Strauss, Alonzo E. Taylor, J. Beaver White, and Clarence M. Woolley.



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Uniform Laws in the Prairie Provinces

Suggested that a Movement, Separate from the Dominion Uniformity Programme, be Started with the Object of Hastening the Adoption of Uniform Laws by the Three Prairie Provinces—Believed that this Work Could be Easily Accomplished

By G. E. WHITE
Chairman, Brandon Section, C.M.A.

THAT much time and patience will be required to secure the uniformity of Provincial Acts is emphasized by the fact that commissioners, when summoned to a conference, have great distances to travel to get together, so that a general meeting can but seldom be held, and the discussion must be carried on to a great extent by mail. As the appointment of provincial representatives is one without remuneration (referring to the Conference of Commissioners on Uniform Law of Canada), we are indebted to the Commission for the work they gratuitously do, and the honorary members, being representative men with large affairs and responsibilities, have not, it is presumed, the time at their disposal that they might otherwise give.

Mr. Matthew Wilson, K.C., of Chatham, favors the writer with the information that the Canadian Conference on Uniform Law is a voluntary body, their first meeting being held in Montreal last year. Each Provincial Government appointed one or more representatives, the appointments designed to be pursuant to statute by Order-in-Council. Their good work should be greatly facilitated by all provinces passing Acts relating to the appointment of Commissioners—Manitoba, British Columbia, Ontario and New Brunswick already having done so. The Sale of Goods Act is one of the first to be taken into consideration, and also in hand are The Partnership Act; The Bulk Sales Act; The Wills Act; The Insurance Act; Landlord and Tenant; Conditional Sales of Goods; Bills of Sale and Chattel Mortgages, Joint Stock Companies and Assignments Acts. Between meetings the Commissioners for different provinces are requested to prepare model Acts on some particular subject, and submit these by correspondence to the Commissioners in other provinces, so that they can be thought over before the general meeting, at which a record of transactions is kept, and a report made with recommendations to Lieutenant-Governors-in-Council for submission to the Legislatures.

Experience of the United States

The United States has had similar experience to ours in non-conformity of legislation. There, twenty-six years ago, when conditions of Uniformity of Laws and the average State populations were similar to those in Canada to-day, the International Conference of Commissioners of State Laws was formed, in conjunction with the American Bar Association. This body has approved Commercial Acts from time to time, some of them requiring several years of thorough discussion, and intercourse with commercial interests. The third biennial report of the Minnesota Board of Commissioners to the State Legislature, at its 1917 session, shows that twenty-four Acts had been made uniform, and the number of adoptions of these by respective States up to that time were two hundred and thirty-three. The Commercial Acts were designed for adoption without substantial change, and with few exceptions were adopted as designed.

Unlike the position of any of the states, or other provinces, the topographical situation of our Prairie Provinces show a number of salient features through which the benefit to them of the Uniformity of Laws may be of greater importance and more easily brought about than elsewhere in Canada. Bounded by the mountains on the west, the Arctic to the north, the lakes on the east, and the international boundary at the south, the conditions might be termed—self-contained. That the development of their splendid resources should be fortuitously or voluntarily hindered in any way by neglect or lack of intensive concentration on conditions and requirements, would be unthought of. Yet, complications in Commercial Law of these three provinces may develop into a hardship, but the likelihood of this is lessened by two facts. First—the importance of uniforming those conflicting acts that now are in force, and proposed legislation that will conflict should it become law, is realized. Secondly—the Conference of Commissioners on Uniform Law is organized to deal with them.

Boiler Legislation in Prospect

The recent movement in regard to the boiler regulations is to be greatly commended. The Provincial Boiler Departments are now drafting uniform specifications for the construction of steam boilers, which it is expected will be adopted by all provinces. This will not, however, alter the present measures regarding boiler inspectors, which remain provincial, and is a matter open for uniformity consideration—as also is that of The Farm Machinery Acts for the three Prairie Provinces, Alberta 1913; Saskatchewan 1915, and Manitoba proposed 1919. The schedule on following page will illustrate wherein the latter differ.

The effect of conflicting laws in the Prairie Provinces, in part, are these:

(*a*) Extra costs necessitated by legal advice, lawsuits, etc., must be borne by the resident of the province, for be it sale of goods, farm loans or otherwise, sufficient advance must be made in selling price, that the vendor may pay his costs, including all extraordinary expenditure, and make the necessary profit.

(*b*) Lawsuits, litigation, and strained relationships brought on by conflictions are non-productive, and induce expensive strife that (unless there is some psychological reason causing a benefit) are detrimental to the well-being of a province.

(*c*) Complicated legislation is as strong a feature as any other, to delay extensive manufacturing being done within the western provinces.

The proximity of Prairie Provinces, their topographical position and similarity, the fact that the nature of business intercourse, and the commodities required are alike, and different to a great extent from those of other provinces; the conditions through which nearly all corporations that deal in one province, deal in them all; and the feature that residents of any one province are in the majority of cases interested in holdings and business dealings in the other two provinces—blend into a position of affairs that show that simplicity and uniformity of Alberta Saskatchewan and Manitoba laws would be such a step towards the greater facility for advancement and the continuance of improvement and stability of the Prairie Provinces, as to necessitate a movement separate from the Dominion Uniformity Programme. It is suggested that

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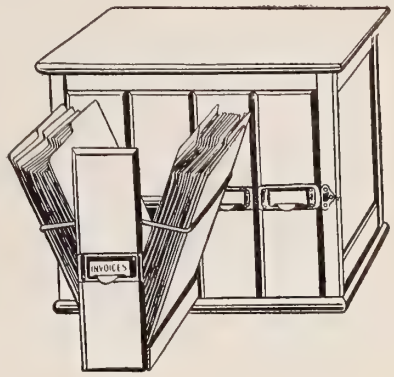
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Made from specially selected Quartered Oak. As above units are simply set together and held in place by dowels, it is very simple and easy to stack them together. Of course, they can be bought as single units or in stacks of any combination or a stack of all one unit.



The above illustrates our new patent filing methods which may be had in 10 or 16-drawer sections for regular office filing or may be had with any number of above stacked together.

The one open drawer contains 30 folders in which are 1000 sheets of heavy copy paper.

As soon as the drawer is drawn out, it automatically spreads open making the contents more accessible.

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The Departmental Manager or Superintendent who has certain papers which he has to refer to frequently will find this case a real friend, as it can be placed on his desk so that he can have everything at his finger tips. If desired, it can be placed in the vault at night.

It is also suited to the man who has private and personal correspondence and documents at his home which he would like filed in a systematic manner.

The Orillia Furniture Company, Limited

Orillia - Ontario

ITEM	SASKATCHEWAN	ALBERTA	MANITOBA
Government records.	Vendors shall file with Government by February 1st, list and description of large and small implements for sale, with cash and credit prices, and description of terms and interest. Also a list of all repairs required with price and place of storage.	No stipulation.	Governed in this Province by Common Law.
Price stipulation.	No repairs to be sold at higher price than listed.		
Penalty.	$25.00 on conviction for selling repairs at higher rate than listed. Fine of $100.00 for breach of the Act.	Court or Judge has power as to decision of all cases.	
Order forms.	No contract valid or no action begun unless contract in writing, in form "A" for new large implements, form "C" for second-hand large implements, form "B" for small implements.	No regulation. This Act shall not apply to second-hand machinery.	
Provision as to Foreigners.	Contract to be read over in a language he understands, and affidavit necessary as proof to this effect.	None.	
To bind contract.	Copy of order form signed "accepted," must be delivered to the purchaser.	No provision.	
Lien.	Lien note must be taken for deferred payments.	Order or note must be registered in accordance with "hire receipts and conditional sales of goods."	Governed by "The Act respecting Lien Notes."
Procedure of repossession by vendor.	In the event of inability to agree upon price allowed, arbitrators to be appointed to arrange same.	Provided for in Lien Law.	At option of vendor, subject to purchasers' right against vendor as trustee. If seizure resisted, must replevy.
Rights of rejection.	Purchasers condemning one part of an outfit may condemn whole outfit.	Ruling by Court or Judge governs.	
Assignment of earnings.	25 per cent. of earning to vendors by prior claim. In case two vendors give notice, the amount equally divided.		Governed by Threshers' Lien Act.
Contents of contract to comply with Act.	Breach thereof to nullify contract at option of purchaser. Vendor responsible for agents' representations.	Vendor responsible for agents' representations.	
Guarantee.	Per order form and stipulations.	Must be made of good material and properly constructed to satisfactorily perform the work for which intended.	Governed by contract.
Repairs.	Before another session of Legislature, companies expected to take proper steps to remove the grievance as to inconvenience of procuring. Assumed that there will be regulations made necessitating repairs to be kept at least in two places, 150 miles apart, and for a number of years after sale.	Kept in two places, 150 miles apart, for 10 years after date of agreement.	

there be a body formed (with remuneration) of representatives from each of the three provinces to act separately on Uniformity of Prairie Province Laws. The advantages to them of the convenience of a meeting place, the similarity of provincial conditions, and the simplifying of their tasks, by omitting the consideration of other provincial laws, would be great. Their actions need not conflict or interfere with the larger organization, but rather, by co-operating with them, be a factor that would make for mutual advantage, and their ability to spend more time and concentrate on the subject should be of assistance to other provinces and the larger uniformity body in the work of general legal conformity.

Action Failed

Name "Rubberset" on Goods Describes a Process and is Therefore Not a Trade Mark

The action brought by Rubberset Company, Limited, to restrain the Boeckh Bros. Company, Limited, from using their trade mark name "Rubberset" on goods manufactured by the defendants was dismissed last month by Judge Masten at Osgoode Hall, Toronto. Boeckh Bros. Co., Ltd., contended that the name "Rubberset" described a process used in the manufacture of brushes and could not be used as a trade mark. Costs were allowed without prejudice to the right of plaintiffs to maintain another action if a case of suspicion actually occurred hereafter.

Started During the War

Interesting Development at North Battleford, Sask., in the Manufacture of Windstackers

An important industry which has been established in Western Canada during the war period is that of the A. Stanley Jones Blower Company, located at North Battleford, Sask. This company manufacturers windstackers for various makers of small threshing machines and is understood to be the first agricultural implement plant in the West that completely manufactures its product and is not simply engaged in erecting. The company also makes kerosine burners for gasoline engines, grain elevators and various accessories for threshing machines.

Mr. Jones is general western sales agent for La Compagme Desjardins, of St. Andre de Kamouraska, P.Q., manufacturers of threshing machines, engines, etc. The machines are built in the Quebec factory and shipped to North Battleford, while the engines are received with one coat of brown paint and are finished and lined at the Western plant. The windstacker company manufactures the blowers and various accessories at North Battleford. The rough castings are done in the province and with that single exception every scrap of the work is done in North Battleford. This year the plant has been enlarged to enable the company to continue erecting the windstackers during the entire winter instead of as previously manufacturing the parts in the winter and erecting them in the busy season.

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For the Rehabilitation of Belgian Industry

Canadian Manufacturers are Invited to Submit Offers to New Co-operative Company Recently Formed in Belgium

A co-operative company has recently been formed in Belgium under the name of "Comptoir National pour la Reprise de l'Activite Economique en Belgique." This company, the object of which is to provide for the re-equipping of Belgian industry and for the reapprovisioning of the trade of the country, is looking for specified offers concerning machinery, implements and raw materials of every description and kind.

The Belgian Consul-General for Canada is desired to invite manufacturers and exporters to mail their offers direct, under registered cover, to the company, care of the Ministere des Affaires Economiques, Bruxelles, and to submit catalogues and price lists in three covers, if possible.

While the company was initially formed with a capital scarcely exceeding $100,000, its financial means are expected to considerably increase, almost immediately, owing to the shares which the Belgian manufacturers and tradesmen, recently delivered from the German yoke, are likely to secure in this undertaking. Financial State assistance has now been granted to the same. Its transactions on the other hand are submitted to Government control. The Comptoir has the power to enter into agreements either on behalf of the Government or on behalf of manufacturers or tradesmen supported by State credit. Purchasing for the account of private firms not being supported by the Government is also within the power of the company. All particulars respecting delivery, credit and special terms for large orders will be duly appreciated.

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Rapid Growth of Merchants Bank

Assets Increased During Past Fiscal Year by Over Thirty-Five Millions

Nineteen seventeen-eighteen proved a period of rapid growth for the Merchants Bank of Canada. This institution, which takes high rank among the chartered banks of the Dominion, completed its fiscal year on October 31, 1918. At that date its assets stood at very close to $166,000,000. A year before, assets were valued at just over $130,500,000, so that during the year the expansion amounted to more than thirty-five million dollars.

Conspicuous among the bank's assets appears the item—current loans and discounts in Canada. This item represents the part being played by the institution in the furtherance of the business interests of the Dominion, and it is interesting to note that at the end of October these advances totalled over $86,000,000, an increase of $18,000,000 for the twelve-months. The bank's share in Government financing is exhibited by its holdings of Dominion and Provincial Government securities, which showed in October a value of over $16,000,000, a gain of nearly $8,000,000. Another important asset comprises holdings of Canadian municipal securities and public securities of British, foreign and colonial origin, which amounted to over $15,000,000, an increase for the year of $6,000,000.

That the Merchants Bank is receiving its full share of the patronage of the public is attested by its deposits. Savings deposited showed an expansion of well over $35,000,000 during the year, and at October 31 totalled $105,694,900. Demand deposits continued about stationary at $27,246,680. Altogether the year's statement is of a most satisfactory character and reflects the highest credit on the management.

Industrial Expansion

That the Canadian Bank of Commerce has Assisted Greatly in Canadian Industries is Evident from Statement

The Canadian Bank of Commerce, in the fiscal year ended November 30th last, enjoyed a period that was distinguished by marked improvement over any recent year. The net profits amounted to the sum of $2,850,318.16, as compared with $2,637,555.43 in 1917, an increase of $212,762.73.

With the balance brought forward from 1917 amounting to $1,332,074.52 and an amount of $1,000,000 recovered from over-appropriation, there was, including the net profits for the year, a sum of $5,182,392.68 available for distribution. Of this total $1,500,000 was returned to the shareholders in the shape of four quarterly dividends and $300,000 by way of two bonuses. A similar amount to last year was transferred to the pension fund, viz., $85,000. Subscriptions to patriotic and benevolent funds reached a total of $102,550 as compared with $72,800 in 1917, and involved $50,000 for the Canadian Patriotic Fund, $25,000 for the Halifax Relief Fund, $10,000 each to the Navy League of Canada and the Y.M.C.A. Red Triangle Fund, as well as $7,550 in smaller contributions of various descriptions. The balance carried forward to the coming year aggregated $1,444,842.68.

The liquid assets of the bank are particularly strong and show a gratifying increase. The amount held in gold and silver coin at the end of the year amounted to $22,186,046.24, and in Dominion notes $39,785,117.25, a total of $61,971,163.49, as compared with $54,652,247.21 in 1917, an increase of $7,318,916.28. In addition the bank possessed immense sums in negotiable securities. The Dominion and Government securities held reach a total of $36,165,259.20, an increase of $8,568,838.98, and the British, foreign and colonial public securities amount to $29,884,242.13, an increase of $7,789,108.84. The bank notes in circulaton amount to $31,583,694.68, an increase of $7,588,450.

In a year in which so much money was placed by investors in Victory Loans, it is surprising to see that the deposits have increased by $76,733,161.63, the aggregate being $353,158,816.04, $151,010,570.57 not bearing interest and $202,148,245.47 bearing interest. The total deposits in 1917 were $276,425,654.41.

That the industrial expansion of the country has been assisted in every legitimate way is apparent from the fact that the current loans and discounts in Canada have increased by $49,850,266.19, the total at the end of the year being $199,672,294.63, as compared with $149,822,028.44 in the preceding year. Current loans and discounts outside of Canada aggregated $17,617,641.44, an increase for the year of $2,771,510.88.

The bank's Rest Account was increased during the year by $1,500,000 and now stands at the same amount as the paid-up capital—$15,000,000.

Great Growth in Assets

Royal Bank of Canada Adds Over Ninety Millions During Its Last Fiscal Year

The manner in which the Royal Bank of Canada is steadily forging ahead is clearly disclosed in its last annual statement. Over ninety-one millions have been added to the bank's assets during the year, bringing the total up to four hundred and twenty-seven millions. Just how rapid has been the expansion can be appreciated when it is recalled that only three years ago, the total assets were still under the two hundred million mark.

With these large assets at its disposal the management has found it possible to give full assistance to the government at a period when its war requirements were especially heavy and at the same time to meet the expanding requirements of regular business. Of the total assets, the amount maintained in liquid assets is $224,982,088 or 56.59 per cent. of the liabilities to the public. Included in the liquid assets are current coin and Dominion notes of $42,124,658, an increase of nearly $8,000,000. Deposits in the Central Gold Reserve amount to $26,000,000, an increase of $10,000,000. The larger assistance given to governments and municipalities is reflected by Dominion and provincial government securities of a value of $36,599,976, as compared with $22,322,197 and Canadian municipal and British, foreign and colonial public securities of $29,620,885, up from $21,586,345. Current loans stand at $183,748,392, as compared with $156,612,129.

The very much larger amount of business handled has naturally added materially to the earnings, and advantage has been taken of them to further strengthen the general position of the bank. The Profit and Loss account is an especially interesting one, showing as it does earnings of $2,809,846, the largest in the history of the bank and equal to about 10½ per cent. on the combined capital and reserve, as compared with $2,327,979 in the previous year. The earnings added to the amount carried forward from the previous year brought the total amount available for distribution up to $3,374,110. Out of this amount the dividends paid during the year required $1,614,702; $100,000 was transferred to Officers' Pension Fund; $400,000 was written off bank premises account; $133,651 was required to pay the war tax on bank note circulation; $40,000 was contributed to Patriotic Funds; $50,000 to the Halifax Relief Fund; and an amount of $500,000 was transferred to Reserve Fund. At the end of the previous year the Reserve Fund stood at $14,000,000 and in addition to the $500,000 transferred from Profit and Loss, there was an amount of $500,000 premium on new capital stock issued to Northern Crown shareholders, bringing the total of reserve fund up to $15,000,000. At the end of the year the total capital stock paid in amounted to $14,000,000.



Dunlop "Gibraltar RedSpecial"

Power—Speed—Service

ON one of the largest main drives in Canada, "Gibraltar RedSpecial" reigns supreme.

It was selected on its record of past performances because the duties were exceptionally exacting.

Only such a high-power belt as "Gibraltar RedSpecial" could meet the demands in a case like this.

Used on thousands of other drives, too.

The Dunlop Guarantee

If you have a difficult drive anywhere in your factory drop a line to our Head Office, or to our nearest branch, and we will send a man experienced in belt engineering to consider your requirements. If it is an instance where "Gibraltar" Belting may be suitably employed we will recommend its use; and we will stand behind our recommendation with the fullest guarantee ever issued by a firm producing rubber products.

"The Original Red Rubber Belt."

Dunlop Tire & Rubber Goods Co., Limited

Head Office and Factories: TORONTO

Branches in Leading Cities.

Makers of Tires for all Purposes, Mechanical Rubber Products of all kinds, and General Rubber Specialties.

D. 31a

DUNLOP RUBBER BELTING

HONOR ROLL OF BELTING

AMONG THE INDUSTRIES

Under this heading are published items of news of current interest concerning the activities of Canadian manufacturers. Information about changes of interest, enlargement of plants, and plans for future developments are welcome, and are published free of charge, provided they should not be properly classified as advertisements

*** Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin**

ALBERTA

Edmonton.—The Swift Packing Co. propose doubling their plant with an expenditure of $500,000. The company has made application to have their premises connected with the city sewerage system. The commissioners have obtained a full report from the engineering department outlining the proposed extension with estimates of cost.

BRITISH COLUMBIA

Marpole.—A roofing and paving industry will be established here in the near future by the Barrett Company, Limited, who have just completed a deal for the purchase of six acres on the Fraser, with the object of erecting a mill.

Port Alberni.—The Alberni Packing Co., Ltd., will erect a cannery here and will commence operations immediately. The plant will cost about $30,000.

Prince Rupert.—Stock-taking at the dry dock and shipbuilding yards is under way, under the supervision of Mr. J. H. Pillsbury, so that the plant in the course of another few weeks can be turned over to the Mullen Construction Company, of Pittsburg, Pa., for the carrying out of a contract to build steel ships here for the Canadian Government. It is understood that it is the intention also to build wooden vessels at Prince Rupert, and that the total tonnage of steel and wooden craft will amount to 60,000. The Mullen Company will spend in preliminary work at least $500,000; the improvements to include plate and angle shops, assembling shops and sheds, and extra equipment. In addition to the construction programme the company will handle all branches of marine repair work.

Vancouver.—Fire last month caused damage estimated at $100,000 to the Morrison Steel & Wire Co.'s plant on Burrard Inlet. The factory was a total loss. The industry was formerly the property of K. J. Morrison, who was lost on the Lusitania. It was recently disposed of by Mrs. Morrison to H. H. McDougall and F. Wilkinson. Steps will be taken to recommence operations. The company had in view the manufacture for export of wire nails. There were 80 employees.

An oil refinery is to be established by the International Food Products Ltd., on Industrial Island. The first unit will be commenced immediately at a cost of $20,000.

The plant of the Morrison Steel and Wire Co., on the water front has been destroyed by fire. The loss is estimated at $150,000.

Victoria.—Contracts for six main propelling engines for installation in the wooden steamships being built by the Foundation Co. for the French Government, have been let to Hutchinson Bros. & Co., Limited. The order involves more than a quarter of a million dollars. Hutchinson Bros. have taken over the sash and door factory operated formerly by Cousins Bros. on Garbally Road. It is also practically arranged that the company will erect a new foundry.

Hutchinson Brothers and Co., Ltd., will erect a new foundry on Garbally Road.

The Cameron Lumber Co. contemplate the erection of a modern foundry on site adjacent to city's storage yards.

MARITIME PROVINCES

Moncton.—At a banquet tendered to the employees of the Marven Biscuit Co. last month, the president, Mr. J. A. Marven, made some interesting announcements about the plans of the company. An extension forty by eighty feet will be added to the factory early in the spring and another American reel oven will be installed. The company has also purchased a 600-acre farm, 33 miles from Moncton, where fruit, eggs, butter, milk, etc., used in the business will be produced. The banquet proved a great success.

Sautnierville.—A new shipbuilding concern to be known as the Duffy, Blinn Co., Limited, has just been established. The promoters are Captain John Duffy, who has just returned from several years at sea, and Mr. Edward Blinn, who for some years has maintained an enviable record as a spar maker in many Canadian and U.S. shipyards. The company will specialize in coasting or fishing schooners ranging from 100 to 175 tons. They will also make a specialty of all kinds of spar making.

ONTARIO

Bowmanville.—The Canadian Container Co., Ltd., are erecting a $50,000 mill and factory.

Carleton Place.—The Hawthorne Mills, are progressing rapidly with work on their new picker house, new dye house and other new buildings. The new main mill is a three-story structure, built with red brick, steel sash and wire glass, 132 x 90 ft. strictly in accordance with the best mill construction. Connected with this, but separated by fire walls and fire doors, is a picker house of the same type of construction, three stories, 80 x 80 ft. Connecting the new and the old buildings is a dye and bleach house 90 x 90 ft. There are to be 20 new knitting machines and one new set of cards installed upon completion. The mill produces blankets, men's hosiery, Jersey cloth, knitted towels and face cloths. Mr. R. Thomson, Sr., is the president of the Company.

Cobourg.—The Lydia E. Pinkham Medicine Co., of Lynn, Mass., will double their Canadian branch by the erection of a cement and brick two-story addition to plant.

Elora.—The factory of the T. E. Bissell Co., Mill St., which was destroyed by fire with a loss of $60,000, will be rebuilt.

Fort William.—Contracts have been let by the Canadian Car & Foundry Co., Limited, for the erection of offices costing $50,000.

Georgetown.—The new factory of the Canada Needle Works, Limited, is now running, and substantial shipments are being made. The knit goods trade has suffered during the last two years more for want of needles than for either yarns or dye stuff. It is hoped that in the near future the Canadian Mills will not be at all dependent on imported needles, and especially those that came from Germany in such large quantities before the war.

Haileybury.—A foundry costing $75,000 will be built by the United Iron Works and Machine Co., Ltd.

What Do You Know About the Publications You Are Advertising In?

Are you not accepting salesmen's statements as to the number of copies printed and distributed in a manner which you would not follow in the other departments of your business?

Are you not paying rates for space, which in comparison with those of other publications would indicate to be too high?

Are you not selecting your advertising media in a haphazard way and more as the result of the individual canvass made than on any plan?

In 350 pages the Desbarats "All-Canada" Newspaper Directory (7th edition), gives the names of practically every journal in Canada—Daily—Weekly—Monthly or Quarterly.

Their age, size, and in most cases circulations are also given. The advertising rates for 1918 are fairly complete and over 100 publishers have used space in it to convey to advertisers the story of the advertising value of their issues.

It is the most recent and most complete collection of Canadian Journalistic Statistics.

$5.00 is the price to the ordinary purchaser.

For Thirty-Five Cents

Fill in the coupon and mail it with 35c.—money, stamps or cheque, and we will send a copy, post free to any member of the Manufacturers Association—(Excepting Pulp and Paper Sections)

THE DESBARATS ADVERTISING AGENCY
Limited

Unity Bldg., MONTREAL **123 Bay St., TORONTO**

N.B.—Our Agency was established in 1892—27 years ago, and the experience gleaned in that time is placed at the service of our customers. Appointments for discussion of advertising and sales problems are requested.

BOVRIL, CLARK'S PORK AND BEANS, "D & A" and "LA DIVA" CORSETS, DENT'S GLOVES, FASHIONCRAFT CLOTHES, HORLICK'S MALTED MILK, PRESIDENT SUSPENDERS, BABY'S OWN SOAP, JAEGER WOOLLENS are among the high-class articles we have helped to sell.

TO

The Desbarats Advertising Agency, Limited, Unity Bldg., Montreal, Canada.
The enclosed 35 cents is for a copy of The Desbarats Newspaper Directory, 1918-1919 Edition, "All Canada," to be sent post paid, as per special offer.

Mr. .....

c/o (Firm Name) .....

Street Address .....

City.....Province or State .....

Hamilton.—The Fox Chain Company of Canada, an industry capitalized at $200,000, has been secured for Hamilton by C. W. Kirkpatrick, Commissioner of Industry, and has already commenced to install a plant, which will be in operation by the first of the new year. Mr. F. A. Fox, the head of the company, has invented a new appliance for tire chains. The new concern takes over the plant of the Ford-Smith Machine Co., on Princess Street, the latter company erecting a new building. The new concern will employ 40 to 50 men to commence with, and by spring will have about 100 on the pay-roll. Frank A. Fox is president; Wilfred North, New York City, vice-president; Frank G. Cornish, New York City, secretary-treasurer, and T. C. Binkley of Hamilton, director.

The Canada Cotton Co. will erect another story to its dye-house, and the work will most likely be started at an early date.

The Canadian Westinghouse Co. have let a contract for an addition to their factory costing $15,000.

An addition, costing $50,000, is being made to the factory of the Zimmerman Manufacturing Company.

The Armour interests have in course of construction a new addition to their Wentworth plant that is estimated to cost half a million dollars.

Ingersoll.—The Ingersoll File Co., Ltd., will erect addition to factory recently purchased in this city. The cost will be about $125,000.

London.—A branch of the L'Aire Liquide Societe, of France, is to be established in London at the interswitch in East London. The building will be 70 feet by 80 feet, and the cost of establishing the plant is estimated at about $60,000. Branches of the society have been established at Halifax, Toronto, Winnipeg and Montreal. Mr. E. Jordan is the general manager for Canada.

New Hamburg.—Siemon Tractor Corporation contemplate renovations to factory. J. E. Siemon, manager.

Oshawa.—F. McCullough will erect a two-story factory building for the manufacture of automobile accessories.

Owen Sound.—Wm. Kennedy and Sons, Ltd., have nearly completed a large addition to their factory. The new building is 50 feet by 100 feet in the ground area, and about 33 feet high. It is well built, steel and concrete construction being employed, and will be equipped with an electric travelling crane of 20 tons capacity. The shop will be used as an erecting shop for marine machinery which the company are manufacturing.

Peterborough.—A new industry that has been given birth in Peterborough is that connected with the manufacture of the De Laval milking machine. After twelve years of experimental work under the direction of the best engineers, the Company has created a machine which they claim is superior to anything yet produced. It is the intention of the De Laval Company to manufacture this machine in Peterborough for the Dominion of Canada, and also some for the export trade. This will mean a notable addition to Peterborough's manufacturing activities, as this particular product has the entire world for a market.

Ratho.—A milk powder plant is to be erected here shortly by the Canadian Milk Products, Ltd., 10 St. Patrick St., Toronto.

Toronto.—An automobile factory will probably be erected here by the Republic Motor Truck Co., 115 Dupont St.

The Canada Wood Products will erect a two-story brick and frame building on the G.T.R. right-of-way, near Pape Ave., at a cost of $40,000.

(*Continued on page* 244.)

Patterns of All Kinds



Castings of Iron and Brass

Offices and Works: Commercial St., Levis, P.Q., Canada

LAUZON ENGINEERING LIMITED, LEVIS, P.Q., CANADA (Opposite Quebec)

Builders of Land and Marine Engines and Boilers.
BRASS AND IRON FOUNDERS.

MECHANICAL REPAIRS OF ALL KINDS.
ENGINEERS AND CONTRACTORS.

Head Office and Plant: LEVIS, P.Q., CANADA

Building of Marine Boilers and Engines; also Installation of same on board ship our specialty.

Our shops formerly known as The Carrier-Laine Shops are at present the best equipped in the Province of Quebec for this class of work. Our Shipping facilities are unexcelled. We have a Deep-Water Wharf adjacent to our plant, and our yard sidings are connected with three railways—Canadian Government Railways, the Grand Trunk Railway, and the Quebec Central Railway. We make patterns of all kinds, and Castings of Iron and Brass.

THE OLIVER BERKLEY COMPANY

Excelsior Life Building
TORONTO - CANADA

Exporters, Importers and Purchasing Agents

EXPORT

Canadian merchandise of all kinds, including Hardware, Nails, Bolts, Nuts, Wire, Iron and Steel Bars, etc. Raw Material, Minerals, Chemicals, Food Products, etc., etc.

We make purchases in Canada for foreign buyers. Our knowledge of shipping conditions and commercial customs in other countries is at the disposal of manufacturers interested in creating or developing an export department.

IMPORT

All articles that can be sold on the Canadian Markets.

REFERENCES

Our customers and Canadian Bank of Commerce.

The keynote of Business for the next few years will be "SALES"

For the past three years it has been "PRODUCTION."

Every nerve was strained to turn out goods. No one had to really SELL them—they were simply BOUGHT, that's all.

Now, that is likely to be changed. With release of materials and labor more goods are going to be made easier and quicker and now the problem is going to be to SELL them.

One of the basic conditions of being able to sell your goods is to be sure they're made as economically and as efficiently as possible.

In doing that you'll need to take very careful—very strict—but very fair account of the working time you buy from your employees. For that is probably by far the biggest "raw material" purchase you make.

That means you'll need an International Time Recorder, for that is the only permanen ly satisfactory working-time meter you can use. Absolutely satisfactory to the worker, because he makes his own time records. Absolutely satisfactory to the management because it ensures a quickly and easily made up payroll which will show credit on'y for actual working time.



Every Employee His Own Timekeeper

Be sure you're right, then go ahead. Let us send you our latest Time Recorder folders. We make all styles to suit any business.

International Business Machines Co., Limited

(TIME RECORDER DIVISION)

FRANK E. MUTTON,
Vice-Pres. and Gen'l Mgr.

Factory and Offices :
Royce and Campbell Avenues, Toronto

Also at Montreal, Winnipeg, Vancouver

(Also makers of Dayton Scales and Hollerith Tabulators)



Dayton Computing Scale No. 485, 30lb. capacity, full agate bearings throughout—"Made in Canada."

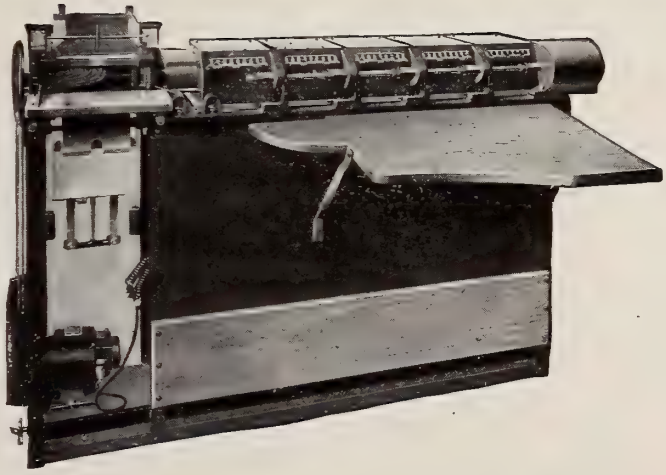
You Often Need a Good Scale, Don't You?

Every Factory, every Warehouse, every Office, needs a really good scale. Not every one knows where to get it, and as our Travellers usually cover only the retail trade, we want every reader of *Industrial Canada* to know that the

Dayton Automatic Scale

is the finest weighing machine made. Almost as durable as the pyramids—as just as British law itself. Made in all sizes for many duties. Let us send you our latest catalogue.

We have our fingers on the pulse of the retail grocery trade throughout Canada, also practically every line of industry where Time Recorders should be used. We find a strong undercurrent of optimism based on Canada's manufacturing, agricultural and financial strength. Every man feels that even bigger prosperity than we have ever had is on the way. The main thing is to keep the wheels of commerce turning—NOW. Buy anything you need NOW. Talk prosperity—and act it—NOW.



Here is Another of the International Family—The Hollerith Tabulating and Sorting Machine.

The machine with electric brains and fingers—invaluable for sorting and analyzing the many thousands of accounts of large public service corporations.

Catalogues and data gladly sent on request.

International Business Machines Co., Limited

FRANK E. MUTTON,
Vice-Pres. and Gen'l Mgr.

Offices in All
Principal Cities

Factory and Offices:
Royce and Campbell Avenues, Toronto

Among the building operations for which permits have been taken out in Toronto during the past few months and which relate to industrial plants are the following: Canadian Allis-Chalmers Co., Lansdowne Ave. and Davenport Rd., addition to foundry, $70,000; Liquid Air Co., Maria and Boler Sts., addition to factory, $18,000; Matthews-Blackwell, addition to packing plant, foot of Bathurst St., $18,000; Bawden Machinery Co., Sterling Rd., addition to plant, $25,000; Campbell Flour Milling Co., Cawthra Ave., reinforced grain and storage tanks, $130,000; Palm Olive Soap Co., Carlaw Ave., boiler-room and chimney, $18,000; B. F. Johnson Soap Co., Carlaw Ave., addition to factory, $25,000; National Iron Works, Cherry St., addition to foundry $15,000; Turnbull elevator factory, Richmond St. West, $20,000; Harris Abattoir Co., addition to cooler building, $75,000, rebuild refinery, $13,000; Page-Hersey Iron Tube and Lead, Church St., office addition, $12,000; Fairweathers, Ltd., four-story building, 88-90 Yonge St., $120,000; International Business Machines Co., Royce and Campbell, addition to factory, $40,000; Universal Tool Steel Co., Dufferin, near Springhurst, addition to factory, $36,000; Wilson, Lytle, Badgerow & Co., addition to factory, $22,000.

Windsor.—The Flexible Metallic Packing Co., Adrian, Mich., plans to erect factory here.

QUEBEC

Three Rivers.—The Tidewater Shipbuilders, Ltd., are installing buildings and plant at an estimated cost of $500,000 for the manufacture of marine engines and boilers.

Champlain.—The Acme Glove Works plan extension to factory at cost of $15,000.

Montreal.—Tenders are soon to be called for erection of $25,000 factory for Pyrene Manufacturing Co. of Canada, Ltd., 3 St. Nicholas St.

A $45,000 factory is to be erected by the Eagle Shoe Co., Limited, 587 Beaudry St.

Contracts have been let in connection with the erection of a $70,000 extension to the steel foundry of Canadian Steel Foundries Limited.

St. Hyacinthe.—The general contract for shoe factory costing $20,000 for the St. Hyacinthe Soft Sole Shoe Co., Ltd., has been awarded.

SASKATCHEWAN

Regina.—The International Harvester Co. will erect plant costing $1,000,000 at corner of Sixth Ave. and Broad St., operations to commence as soon as present quarters can be disposed of.

Water Wheel for sale—1—50" Barber Turbine; also shafting and gearing in good condition. For full particulars apply to the Slingsby Mfg. Co., Ltd., Brantford, Ont.

Exceptionally Qualified Purchasing Agent—Fourteen years unusually good experience; has the training, personal force, organized knowledge and initiative to produce net results. Control supplies for maximum efficiency and lowest possible investment. Canadian citizen now living in U.S. Address Box 1005, INDUSTRIAL CANADA, Toronto.

Brushes, Handles, Woodenware, Sponges, Chamois-leather, Mops, Dusters, Ropes, House-cloths, Soap, Blacking. Well known manufacturers agent in Ghent, Belgium, with wide connection among the best buyers, wishes to establish connection with reliable firms who can export the above lines. Good references. INDUSTRIAL CANADA, Box 1003.

PATON MANUFACTURING COMPANY
OF SHERBROOKE

Manufacturers of Beavers, Meltons, Uniform Cloths, Broadcloths, Plain and Fancy Overcoatings, Fine Wool and Worsted Suitings, Homespuns, Cheviots, Dress Goods, Jersey Cloths, Cashmerette, Worsted Hosiery and Spinners of Worsted Knitting and Fingering Yarns

SHERBROOKE .. PROVINCE OF QUEBEC

Montreal Office: 325 Board of Trade Building **Toronto Office: 33 Melinda Street**

Here's Something To Interest You — The

"JIFFY LID"



Here is a new idea that will interest you because it provides a method by which your package can be opened without inconvenience or mutilation. It also facilitates the pouring of the contents.

The "Jiffy Lid"

allows the user of your product to open the package simply by the pressure of the finger this pressure releasing a scored section which forms a pouring spout as shown by the illustration.

This new selling feature can be added to any size or style of folding carton ***without extra cost.***

Any top-sealing machine will seal it perfectly, leaving the package as tight and substantial as any old style carton.

Some of the Products for which "Jiffy Lid" Cartons are Ideal

Cereals of all descriptions, Sugar, Salt, Soap Chips, Powdered Soap, Powdered Ammonia, Washing Soda, Baking Soda, Corn Starch, Laundry Starch, Coffee, Spices, Cocoa, Currants, Raisins, Dried Peas—in short, any dry product that is customarily poured from the carton.

Write for Quotations on your Carton Requirements, including this "Jiffy Lid"

RUDD PAPER BOX CO. LIMITED

372-374-376 Richmond St. West **TORONTO**

Death of John D. Ivey

An Old Member of the Association Passes Away in Toronto

In the death of the late John D. Ivey, founder and president of the John D. Ivey Company, Limited, Toronto, the Canadian Manufacturers Association loses an old and loyal member. Mr. Ivey was born in Jarvis, Ont., sixty-six years ago, and when only twenty-nine years of age went to London and started a wholesale business, the nucleus of the present business of the John D. Ivey Co., making his headquarters in Toronto in 1885. Mr. Ivey's interests in life were wide and varied. He was a member of the council of the Toronto Board of Trade, being chairman of the dry goods section; director of the Trusts and Guarantee Co.; an honorary governor of the Toronto General Hospital, and a member of the National and Caledon Clubs. He was a member of and zealous worker in the Sherbourne Street Methodist Church, and a strong supporter of the East End Day Nursery and other charities.



The honorary pall-bearers at the funeral were Sir William Gage, and Messrs. Nicholas Garland; Frank Arnoldi, K.C.; D. B. Hanna; Wm. Thoburn; T. Albert Brown; J. F. Ellis; J. J. Warren and James Ryrie. The pall-bearers were six employees who had been with the deceased for from twenty to thirty-five years.

Presented With Badges

A Fitting Tribute Paid to the Loyal Service of 180 Women Munition Workers

One of the pleasantest incidents yet recorded in industrial circles was an interesting function held at the plant of the Russell Motor Car Co., Limited, Toronto, on the afternoon of Sunday, December 29. Part of the plant was turned into an auditorium, where the employees assembled, and here 180 women who had been engaged in the manufacture of munitions were presented by the management with solid gold badges. It was made to represent a wreath of maple leaves surrounding a 9.2-inch shell, upon which was embossed a replica of the factory building. Upon the reverse side appeared the inscription: "Presented to———— by the Russell Motor Car Co., Ltd., for two years of faithful service making munitions."

On the platform were seated Hon. Dr. Cody, Minister of Education for Ontario; T. A. Russell, vice-president and general manager of the company; J. F. MacKay, treasurer; Mrs. Russell and her daughters; Col. Alby and Lieut. Tenny, who were connected with the U.S. Ordnance Department in this country. Speeches were delivered by Dr. Cody, Mr. Russell and others, and selections by an orchestra, and songs by Frank Oldfield completed a splendid programme.

STAUNTON SUPERIOR WALL PAPERS



The Sea-Grass. No. 1396

Owe their popularity to the fact that from the lowest-priced papers, through all the medium grades, to the high-class specialties in the 21-inch width, they are all imbued with a subtle charm, a cheering freshness and an artistic originality that make them desirable the world over.

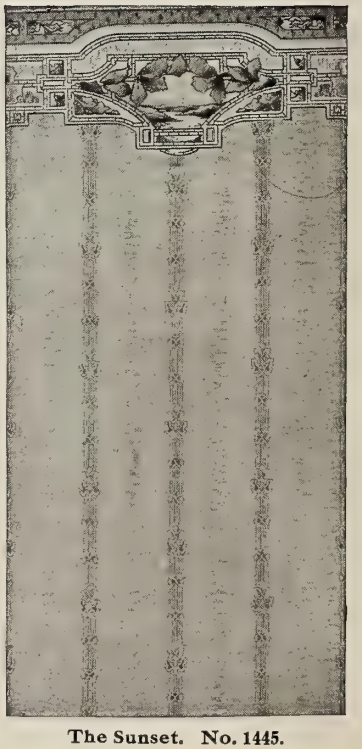
Staunton "Ready-Trimmed Papers" (Patented Process) save time and labor, prevent half the disorder in the home when papering is in progress, and invariably insure satisfactory results.

We invite correspondence from the trade.

STAUNTON'S LIMITED

Wall Paper Manufacturers

TORONTO - - CANADA



The Sunset. No. 1445.

BOXBOARD

Our manufacture of BOARD for PAPER BOXES and other uses includes the following standard lines, also other specialities:---

Strawboard, Fibre Container Board
Chipboard, White Lined Newsboard
Filled Woodboard, White Triplex Board
Vat Lined Chipboard, Pasted Board

MILLS AT

FRANKFORD, ONT., and MONTREAL, P.Q.

With our two centrally located plants, we are able to offer unexcelled service.

CANADA BOXBOARD CO., LIMITED

MAIN OFFICE:

Foot of Seigneurs Street - - - MONTREAL

Hon. Finlay G. Macdiarmid
Minister of Public Works

W. A. Riddell, M.A., Ph.D.
Superintendent Trades and Labour

ONTARIO

TRADES AND LABOUR BRANCH
DEPARTMENT OF PUBLIC WORKS

Reconstruction

is the word on every lip to-day. The problems of the re-adjustment period require the same whole-hearted co-operation of every element in the community which has made victory possible.

Manufacturers and other employers of labour can greatly assist in bringing labour conditions back to normal by obtaining their help through the

Ontario Government Public Employment Bureaus

During the past two years the employment bureaus have assisted materially in providing labour for Ontario's farms and munition plants. The bureaus are now extended in number and staff and are prepared to help you in your post-war labour problems.

We are working in closest co-operation with the Dominion Employment Service and the Department of Soldiers' Civil Re-establishment.

We should be glad to send a special representative to talk the matter over with you. Drop a line to the Provincial Employment Clearing House, 45 King Street West, Toronto, or telephone Main 3501.

TRADES AND LABOUR BRANCH

DEPARTMENT OF PUBLIC WORKS

Our Motto—"The Right Man in the Right Job."

The Manufacturer's Bookshelf

Air Compressors

In a new bulletin K-303, issued by the Canadian Ingersoll-Rand Company, Limited, the class EL-2 two-stage straight line air compressor is described. The bulletin indicates the advantages of the tandem arrangement for certain classes of work where economy of space is to be combined with the advantages of two-stage compression, and goes on to give details of construction, including the Leaf Valves, and other features. The bulletin concludes with a note on the shortbelt drive, with which this type of compressor can be furnished, and which has distinct advantages where space is at a premium.

Electrical Specialties

A new catalogue, replacing all previous catalogues, has just been issued by the Harvey Hubbell Company, of Canada, Limited, manufacturers of electrical specialties. It is a wonderfully compact catalogue, condensing into small dimensions particulars of the enormously diversified line of goods made by this company. Incidentally, it might be stated that the complete line of Hubbell products is now manufactured in Canada. The catalogue is well illustrated and arranged in such form that information can be readily procured on any point in connection with the size and description of an article and its price. It is a book that should be kept at hand by every purchaser of electrical apparatus.

A Proud Record

With the title, "Eighty-Four Years' in Public Service," an interesting record in booklet form has recently been issued by the firm of T. McAvity & Sons, Limited, St. John, N.B. It tells the story of an honorable business career extending from 1834 to 1918 and is illustrated with portraits of members of the McAvity family who have been associated with the business down through all the years. A reproduction of the McAvity service flag with its 158 leaves, the company's roll of honor and references to what the company has done in munition production, show the splendid part played by the organization in the winning of the war. Interesting sketches of various members of the family complete a publication which reflects great credit on this fine old St. John corporation.

Link-Belt Equipment for Coal Mines

The latest descriptive publication of the Link-Belt Company deals with link-belt equipment for the handling and preparation of coal at the mine. It is, as usual, an illuminating booklet, illustrated in the clearest and most explicit fashion. Page after page of fine halftones showing actual mining equipment as shown, followed by pages of explanatory letter-press with more detailed cuts. Catalogues are so often repelling in their complete lack of anything to attract the eye that when such a production as this comes along, it is doubly welcome. Even if a manufacture it not directly interested in the mining of coal, he can derive some inspiration at least from an examination of this catalogue de luxe.

Automotive Equipment

In this catalogue "A-19" of the Kinzinger, Bruce & Co., Limited, Niagara Falls, Ont., are shown the numerous articles required in the maintenance or conservation of motor cars, made by this company. These embrace jacks, pumps, tire carriers, adius rods, bumpers, etc. Each article is illustrated, described and priced, so that it is an easy matter to locate just what is desired.



AT THE OTHER END OF YOUR TELEPHONE —

10 SERVICE STORES TO HELP YOU SOLVE YOUR SYSTEM PROBLEMS

Stretching across the breadth of the Dominion, from Halifax to Vancouver, is a chain of "Office Specialty" Service Stores, each manned by a corps of system experts—men who make filing systems their business and study—who individually possess a wealth of experience gained through contact with hundreds of system problems in every kind of business.

These system experts render you a personalized, on-the-ground service. They come prepared to analyze your present filing or office system. And from this analysis suggest improvements on it (if any are possible.) Or, if the present condition of your system warrants it, they will lay before you tentative plans for a complete and more efficient system.

In the large business centres of the Dominion these system representatives are no further from you than the other end of your telephone. And the service they render costs you nothing.

Backing up and making possible the effectiveness of these centres of system is our central System Department. Into this department constantly filter reports on myriad systems—maybe from Montreal a new sales record system installed for a wholesale furrier—or from Hamilton a cost system worked up for a steel company. Reports of these systems are classified and transmitted to each Service Store in the hope that they may prove of use and benefit in helping business men in widely separated territories solve similar filing problems.

This service we are rendering is finding great favor. Business men like and appreciate it. And we, too, find that it is mutual and profitable, on the theory that business comes where service starts.

And in these times when more work has to be performed by depleted staffs it is proving of value in more ways than one.

If you can use it—please do. If there's undue pressure of work on your shortened staff, here's maybe the relief you want. Telephone or write to our nearest Service Store for a system representative to call.

THE OFFICE SPECIALTY MFG. CO., LIMITED
Home Office NEWMARKET Canada

Filing Equipment Stores at :

Toronto Montreal Ottawa Halifax Hamilton Winnipeg
Regina Edmonton Calgary Vancouver

OFFICE SPECIALTY
LABOR SAVING OFFICE DEVICES — "The E" — TIME IS MONEY
FILING SYSTEMS

To Facilitate Exports

Minister of Marine Responds to Appeal From the Canadian Pulp and Paper Association

The Hon. C. C. Ballantyne, Minister of Marine and Fisheries, has notified the Canadian Pulp & Paper Association of his department's willingness to do everything possible to facilitate the shipping of Canadian pulp and paper products to foreign countries, and has asked for definite information as to the tonnage required, the destination of the proposed shipments, etc.

The action of the minister is the result of a memorial addressed to the Government setting forth that the lack of shipping space available to Canadian shippers is proving a serious handicap to the shipment of many orders already secured in the various markets of the world and asking the Government to give immediate consideration to providing adequate shipping accommodation.

It is understood that the shipping chiefly desired is to trans-Pacific destinations. Such little space as is now available is said to be held at prohibitive rates so far as pulp and paper exports are concerned.

Progress of an Edmonton Industry

By JOHN A. McDOUGALL

Vice-President and Managing Director, Edmonton Cement Co., Limited, Edmonton, Alta.

The Edmonton Portland Cement Co., Ltd., started manufacturing and shipping in August, 1913. Shortly after the outbreak of war in August, 1914, the company went into voluntary liquidation, on account of cancellation of orders. In 1916, the assets of the company were sold to the Edmonton Cement Co., Ltd., and the Edmonton Cement Co., Ltd., immediately started to change the process of manufacture from wet to dry. Owing to delay in receiving the necessary machinery and material, the plant was not in shape to operate until April of this year.

The present capacity of the plant is 2,400 bbls. per day, but during this year, only one kiln was in operation, as, our immediate home market could not absorb any greater output. We had intended increasing our output by putting on another kiln, but the crop failure prevented us from doing so. Our sales nevertheless were satisfactory, after having been out of the market for two years. We expect the coming year will be much better for our product and that we will operate the mill to capacity.

The labor situation has not interfered with us to any extent so far and we do not anticipate any labor troubles during the ensuing year. We employ from seventy-five to one hundred and twenty-five men.

The change in the process of manufacture, necessitated the opening of a stone quarry at Jasper, Alberta, and the installation of quarrying machinery. The rock is quarried and crushed before shipping and this part of the plant employs about twenty men. The distance of the quarry from the mill is thirty-four miles.

Trade Commissioner for West

L. B. Beale, head of the trade extension branch, and forest branch of the Department of Lands, and at present in England as a special lumber commissioner, has been appointed British Trade Commissioner for Western Canada, with the territory extending from Winnipeg to the coast under his jurisdiction. His headquarters will be at Winnipeg.

"DRYDEN"
KRAFT PULP

Extra Strong, Long, Pure
Sulphate Fibre

DAILY CAPACITY 120,000 POUNDS

KRAFT WRAPPING / SHEATHING PAPERS

DAILY CAPACITY 45,000 POUNDS

The Dryden Pulp & Paper Co., Ltd.

J. B. BEVERIDGE, Vice-Pres. and Gen. Mgr. DRYDEN, ONTARIO, CANADA

What's the Outlook?

¶ The curtain is just descending, marking the end of the last act of the great drama of war.

¶ Canada flew to arms at the first call of war, and from Ypres to Mons the Canadian corps never gave up a position they were ordered to hold or failed to take a position they were ordered to capture.

¶ The high courage, resource and fortitude with which Canada met, endured, and with our allies triumphed in war is ample assurance that

¶ Canada, with all her wealth of natural resources, man power and industrial equipment will ***"carry on"*** in these reconstruction days, will not merely bring our affairs back to normal but expand to meet the necessities of a world hungry, unclothed and unhoused.

¶ Co-ordinating with its brothers in industry, the Benjamin Company is bending every effort to reach that point where it can take its proper place in the work of the wonderful years that lie before us.

Benjamin
PRODUCTS

Two-Way Plugs
Marine Lighting Fixtures
Factory Lighting Fixtures
Gas and Vapor Proof Fixtures
Store and Office Lighting Fixtures
Industrial Signals
Weatherproof Devices
Enameled Steel Reflectors
Panel Boards and Cabinets
Punch Press Safety Devices
Porcelain Enameled Steel Specialties
Wiring Devices
Electric Lighting Specialties
Metal Stampings and Drawn Work

Benjamin Electric Mfg. Co. of Canada Limited
11-17 Charlotte St., Toronto

Benjamin

IMPERIAL CARBIDE

It is demanded for welding and cutting because

Imperial Carbide produces Acetylene Gas of Unusual Purity, INVARIABLY.

Imperial Carbide is made by the most modern methods, from the best raw materials obtainable, and is guaranteed to give complete satisfaction.



We manufacture **Imperial Carbide** of the same quality, in sizes suitable for town lighting, house lighting, mine lighting, construction work, marine lighting, etc., etc.

Write for quotation and further information.

UNION CARBIDE COMPANY OF CANADA, LIMITED

Works:
WELLAND, ONT.

Head Office:
DOMINION BANK BLDG.,
TORONTO, ONT.

Large Stocks Maintained at Convenient Distributing Centres Throughout Canada

Good Things from Other Magazines

Supporting Trouble-Making Publications

If advertisers persist in "buying circulation," the net effect of which is to sap and undermine the whole fabric of business, they are unpatriotic and disloyal and not even to be credited with business gumption, for in the end if unworthy, incendiary, trouble-making publications gain the ascendency they will make enough converts to tear down the whole fabric of business

By B. C. FORBES

An Address before the Association of National Advertisers

THE ideas of the great mass of the people are formed very largely by what they read. You have a responsibility just as I have a responsibility in doing what we can to promulgate sound doctrines. Is it not true that many of you advertisers and advertising agents, have been swayed in the past entirely by selfish considerations in the placing of your business, in the spending of your advertising appropriations? Is it not true that some of the most notorious muckraking periodicals were unable to carry all the advertisements you offered them in the heydey of their muckraking power? Was not your argument, "My business is to sell so many million bars of soap, or so many razors, or so many suits of clothes. That's what our advertising money was appropriated to accomplish, and that's what I mean to accomplish. If I can do this best and quickest by advertising in a publication which has become the rage because of its muckraking, then I am going to use the mudslinging publication."

An Unprofitable Course

Is that not a true statement? If so, is it not a serious indictment? Cannot you see how shortsighted, how foolish, how mischievous, how unprofitable in the end was such a course? What if you did succeed in selling a few or even many more bars of soap or razors or shaving sticks, if the spending of your money in those channels was directly helping to sow the seeds of discontent, of revolution, of anarchy, of what we now know as Bolshevism? Such advertising doubtless helped you to add a storey or two to your business structure, but, mark my words it laid the dynamite, it laid the mines, it laid the bombs which now threaten to explode and sweep away not merely the extra storey or two you gained, but the whole foundations of your business and its successful prosecution.

You national advertisers must gain a broader conception, a longer vision of your calling and your responsibilities. Your duties do not begin and end with "buying circulation" and marketing products. You are human beings, you are citizens before you are business men. Man has a higher duty than merely to make money regardless of ways and means. You are your brother's keeper. It has cost 20,000,000 lives and $200,000,000,000 to teach Germany that elementary fact. Upon you rests a greater responsibility now and hereafter than ever rested upon you in the past.

Forces are at work, which, if not wisely handled, may lead this country into perilous paths. We have lately seen brazen attempts to raise the red flag at the head of processions along the most famous avenue in America and at a mass meeting in one of America's largest public halls. How much did the money some of you spent in trouble-breeding publications contribute to the hoisting of these red flags and to the fanning of the anarchistic, the Bolshevist flames now daring to break out here and there throughout the country? You who strengthen and support and encourage publications which grossly mislead the public, which incite revolution, which inflame ill-will against business and captal, which laud revolution and destruction—you who strengthen the power and the influence and the circulation of such publications are more guilty and more condemnable than the scatterbrains who swallow what these publications preach, for you are educated and they are not.

You reply, perhaps indignantly, "Are we expected to set ourselves up as censors of every publication in America? Are we to discriminate between one publication and another? Are we expected to boycott publications which do not see eye to eye with us and to support publications which take the side of capital?"

Everyone of us, if we are to fulfil our duties as decent citizens, must act as censors every day of our lives. We pick and choose our shoes, our hats, our suits. We pick and choose when we want to buy a phonograph or a piano or an office desk. Why, if were not censors, if the whole public were not censors in every phase of their life, what in thunder would be the good of advertising? Don't you gentlemen advertise to convince the public that what you have to offer is superior to the thing your rival has to offer? Yes, indeed, you expect the public to be censors and to exercise discrimination in what they buy.

Exercise Discrimination

Why, therefore, in the name of common sense should you not be expected to exercise discrimination in determining how you shall spend your money as advertisers? Is it asking too much of you, as responsible citizens, as fathers of families, as business men possessing acumen and vision—is it asking too much of you to adopt as a general working policy this test: "Is this publication which I propose to endorse and strengthen and support by my money a publication that I would be willing to have on my library table and glad to see my sons and daughters read? Is it such a publication that, if its tenets and views were taught in the public schools and the universities of the country, the coming generation would be better men, and women?"

You "buy circulation." Sometimes you make that statement with a tone of great finality as if that settled the whole question and ended your entire responsibility. My God! you can buy prostitution. You can buy poison. You can buy rot-

RIBBON
SHOE
PEG-
WOOD

Manufactured by
O. CHALÍFOUR
QUEBEC, CAN.

Established in 1872

Canadian Cereal and Flour Mills Company, Limited
Head Office - Stratford, Canada

Flour and Cereal Exporters
Millers and Grain Dealers

MANUFACTURERS OF
FLOUR, ROLLED OATS, OATMEAL, POT AND PEARL BARLEY, SPLIT PEAS, BROSE MEAL.

Cable Address: "CANCEREAL"
Codes used:
A.B.C. 4th and 5th editions. Riverside.
Western Union.

ten eggs. Simply because you can buy them is no adequate reason why you should buy them. If you "buy circulation" whose net effect is to sap and undermine the whole fabric of business you are unpatriotic, you are disloyal, you are not even showing business gumption, for in the end if unworthy, incendiary, trouble-making publications gain the ascendency throughout the country they will make enough converts to tear down the whole business structure and strew the land with the sort of thing we see rampant in Russia and to some extent in other European countries to-day.

When Ivy Lee was appointed a member of the Rockefeller cabinet for the purpose of advising them concerning the establishment of proper relations with the public, the first thing he said to the stalwarts of 26 Broadway was this: "I will not try to get publicity for you. My mission must be to see to it that every phase of your business is conducted in such a way that the fullest publicity, if it should come, would not harm you one iota. If you conduct your business on a high level the publicity will take care of itself."

The duty of each one of us now is to endeavor to bring about genuine democracy in business and in industry. Capital, if it has not already done so, must vacate its throne of absolutism. Labor must be made to see for itself that it cannot, with profit to itself, attempt to become arbitrary, arrogant, dictatorial, that the public will not stand for autocracy, or absolutism from any quarter. Incidentally, my own deduction is that the November election returns reflected widespread disapproval of what was interpreted as an attempt by President Wilson to dictate to the people as to how they should vote and that they resented even this mild suggestion of dictatorial methods.

An Understanding Wanted

What we must strive to reach is a complete understanding between employers and employed. Those at the top must meet the rank and file half way. There must be no attempt, should workers become more plentiful than jobs, to "teach labor a lesson," by wholesale firing, by drastic cutting of wages or by other harsh, haughty methods.

We publishers have a great, I might almost say, a sacred responsibility. So have you large employers. So have you advertising men. If by our combined efforts we can facilitate the bringing about of twenty-four carat industrial democracy in which the management of corporations will be shared by the workers as well as by the high officials and the directors, then we can hope to keep the national ship on an even keel. Then we can hope to see the United States of America rise to the front rank of the world's financial and industrial powers and become a towering lighthouse for the guidance of other nations. Then shall we fulfill in the highest degree the hopes, the dreams, the aspirations of the founders of this Republic and of that greatest of all Americans, Abraham Lincoln.

But remember that nothing is ever settled until it is settled right.

We cannot settle this momentous problem if each of us seeks only his own aggrandizement, if each of us strives only to feather his own nest and blatantly declares, "Let the devil take the hindmost. I am out for Number One." We cannot do the best we can for Number One unless we do the best we can for others. We have to become our brother's keeper. You cannot do so by trying to make money by mischievous, shortsighted methods. If you try to pick dollars out of barrels of pitch your fingers are likely to be soiled. You cannot play with fire and hope forever to remain unscorched. We must all exert ourselves to the utmost to battle valiantly for the right and to eradicate wrong.

It can be done.

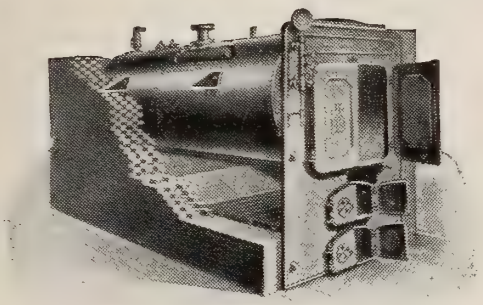
D&P QUALITY

EXCELSIOR PADS FOR PACKING

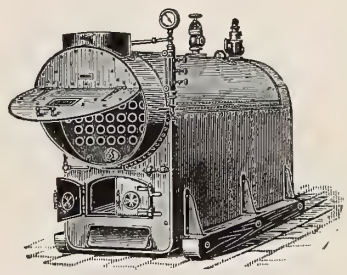
SAMPLES and PRICES ON REQUEST

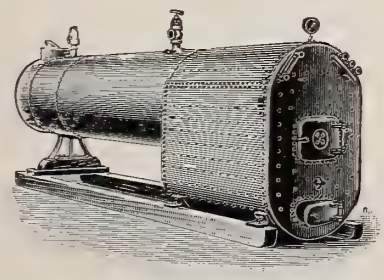
DELANY & PETTIT LIMITED
TORONTO

E. Leonard & Sons, Limited
LONDON . . ONTARIO

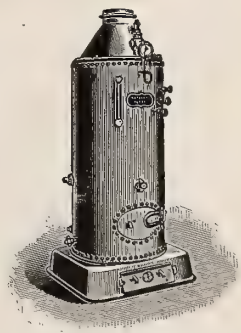


Manufacturers of
BOILERS
ENGINES
of all types and sizes





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62 Water Street, St. John, N.B.
567 Banning Street, Winnipeg, Man
Vancouver Machinery Depot,
Vancouver, B.C.



"The Quality Lines"

of Farm Machinery

Machines Made to Stand Up and Do Their Work Well

JOHN DEERE LOW DOWN MANURE SPREADER
"The Spreader with the Beater on the Axle."

JOHN DEERE - VAN BRUNT GRAIN DRILL
"Uniform Seeding at Proper Depth."

JOHN DEERE - VAN BRUNT FERTILIZER DRILL
"Makes All of the Land Produce"

JOHN DEERE-VAN BRUNT LIME AND FERTILIZER SOWER
"Even Distribution Assured."

HOOVER POTATO DIGGERS
"Get All of the Potatoes and Save Labor."

HOOVER POTATO PLANTERS
"The Visible Planter With Automatic Feed Control."

HOOVER POTATO CUTTERS
"Cut Large and Small Potatoes in Proper Number of Pieces Quickly."

JOHN DEERE-DAIN SYSTEM LEFT HAND SIDE DELIVERY RAKE
"Makes Better Hay—Nature's Way."

JOHN DEERE-DAIN HAY LOADER
"The One-Man Loader."

JOHN DEERE ONE-HORSE STEEL CULTIVATORS
"Made to do Their Work Well, and Quickly Adjusted."

JOHN DEERE SYRACUSE SPRING-TOOTH HARROWS
"Can be Used Profitably in All Kinds of Land."

JOHN DEERE CORN PLANTER
"Gives Accuracy—Not Average."

JOHN DEERE CULTIVATOR
"The 'JB' Gives Clean and Thorough Cultivation."

JOHN DEERE BEET TOOLS
Seeders—Pullers—Cultivators
"They Save Labor and Make Production Profitable."

JOHN DEERE WELLAND, CANADA. THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

ASK YOUR NEAREST JOHN DEERE DEALER FOR LITERATURE ON THE MACHINES YOU ARE INTERESTED IN, OR WRITE DIRECT TO—

John Deere Manufacturing Co.
Limited
Welland - Ontario

J. Ford & Co.

PORTNEUF, QUE.

PAPER

MANUFACTURERS

Manufacture

WRAPPING, HANGING, BAG, HARD SIZED NEWS AND COLORED POSTER PAPERS

INQUIRIES ARE SOLICITED

SERVICE WORK IN A SMALL PLANT

Machinery, men and materials—the greatest of these is men. Yet it is not long since the manufacturer realized it was good business to have a purchasing agent for labor and a human engineer to keep his workmen in running order

By MARY L. MORRIS

(From "Textiles")

In a big plant in Pennsylvania there is kept in the vault a book. This book is a record of the employees, kept sixty years ago by the iron master who started the furnace. He had twenty men employed; they stayed with him until they died or were pensioned and some of their descendants still work in the plant. The iron master's labor turnover was zero, and why? The records in the book tell. The marriages and deaths, the births, and christenings, to whom he lent money, and why and how he helped them out of their little troubles and sicknesses, all show the close companionship and understanding that existed between the master and his men.

The capitalist to-day cannot get in personal touch with his ten thousand employees. His foreman could do it, but the average one is too busy trying to get out 90 per cent. production, to study his men or learn of their cares and troubles.

The manufacturing world is beginning to realize that the human factor is an important and neglected element, to be studied and dealt with in a new spirit.

Under the Name of Welfare

This human factor was first brought in to the plant under the name of welfare. Some employers were sincere in introducing, they felt they owed more than the wages; that the employee was entitled to right working conditions, with proper sanitation, heat and light. Others introduced it to cover up poor working conditions by a display of such things as fine recreational buildings, which would mislead the employees and make good advertising. To-day the name welfare is falling into disuse with, let us hope, the abuses that went with it. The employment-service department has come to take its place and with this the working world has at last found a common denominator that they can say is true "welfare work." In other words such a department stands to a plant in the relation that sixty years ago the master did to his twenty men.

The department consists of three divisions. Employment, which is the turnstile into and out of the mill, where an expert studies the man and fits him to the job that he can best fill; transfers him if he does not fit; finds out why he is not satisfied; and finally if he will not stay, finds out the real reason why he goes.

The second division is the social service department, whose chief aim is to aid in preserving the efficiency of the individual. This frequently takes the expert into the home of the employee, which makes for the human tie that in return binds the group together in loyalty. This division also assists the employees in running their benefit society and savings fund, lends them money when it is right and helps them out of their troubles.

The third is the medical division. Here the employee is examined when he first comes in, not to throw him out if he is physically unfit, but to assist him to overcome defects and to place him in the kind of work for which he is best suited physically. It looks after him when he is sick or hurt and should, if possible, keep a nurse, who can go into the home

The JONES
Underfeed Stoker

—means more power from less fuel.

Every manufacturer developing his own steam power needs a Jones Underfeed Stoker.

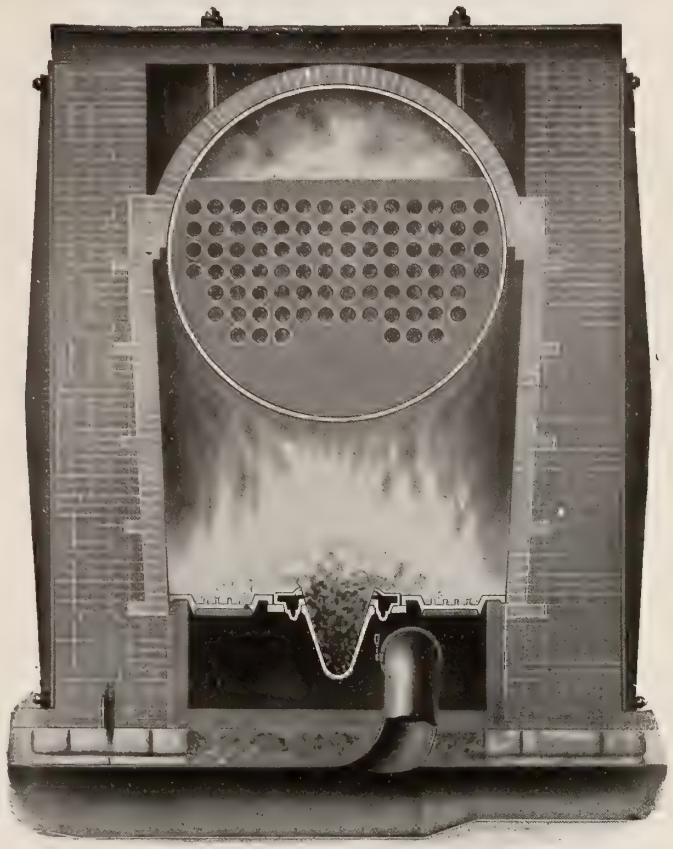
You need a **JONES STOKER** in your plant to reduce consumption of that **high priced coal**

The large saving made will pay for the investment many times over besides increasing the steaming capacity of your boilers.

A Jones Stoker will burn any grade of bituminous coal from Dust to Run of Mine and your fuel savings will run between 15 and 25 per cent.

Why not Get Proof?
Write for it now.

Jones Underfeed Stoker Co.
Limited
37-41 Britain Street, Toronto



BOILERS IN STOCK

Subject to prior sale

2—72″ x 18′ H.R.T. Boilers 125 W.P. Ontario Code
2—54″ x 14′ H.R.T. Boilers 125 W.P. Ontario Code

VERTICAL TYPE	LOCOMOTIVE TYPE
1—30 H.P. Ontario Code	1—50 H.P. Standard Inspection
1—25 H.P. Ontario Code	2—30 H.P. Standard Inspection
2—20 H.P. Ontario Code	1—20 H.P. Standard Inspection

1—9″ x 12′ Double Cylinder Jenckes Cableway Hoist, complete with carriage, cable, sheaves, etc.
1—Open Top Tank 10′ long x 2′ deep x 3′ wide ¼″ plate.
1—Concrete Bucket 24″ x 24″ x 30″ deep with open bottom.

We manufacture Marine, Horizontal Tubular, Vertical Tubular and Locomotive Type Boilers, also Smoke Stacks, Breechings, Tanks, Penstocks and CASTINGS up to 15 tons.

Send us your enquiries.

Engineering & Machine Works of Canada
Limited

Works and Head Office: ST. CATHARINES, ONTARIO
Formerly St. Catharines Works of The Jenckes Machine Company, Limited

Eastern Sales Office:
Hall Machinery Company
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to aid and advise in sickness, whether of the employee, or a member of the family.

Given machinery, men, and materials, the greatest of these is men and hardest to replace; therefore, the most important to keep stable and in good working condition. Yet it has not been very long since the manufacturer realized it was good business to have a purchasing agent for labor and a human engineer to keep his workmen in running order the same as he has for his machinery.

If your plant is large, it is absolutely necessary to have a service department if you wish to run it on an efficient basis. If you have a small mill, say of five hundred employees, such a department is able to get in such close touch with the people that it nearly resembles the iron master and his twenty men. It is this personal knowledge and friendship with the employees that tends to make a small labor turnover.

The father of many of the bad strikes of to-day is the man who twenty years ago was taken on because he was an illiterate and would put up with any wage, hours or working conditions. The person who to-day is put in charge of an employment service department, whether in a small plant or a large one, must have certain qualifications without which the best purpose of the work will be defeated.

This person must be able thoroughly to "understand the workman's point of view and then interpret it to the management." He must be able to promote and keep friendly relations between the employer and employee, who by tradition are supposed to be at the opposite ends of the poles.

Making Haste Slowly

In starting work in a small plant where there is little knowledge of the intentions of this person or department there is necessarily much antagonism, even if it is not open. Therefore, you "make haste by going slow." You win your operative first. He soon sees that you are on the square, that when you interview him for a job you tell the truth about it, and leave it to the foreman to engage him. This last point is essential. You pick the best men you can for the job, but let the foreman hire him; he will try harder to keep his own man than yours.

The service manager will listen to the operative's story of a grievance, or injustice, or wrong pay. He will not take sides, though it is rarely necessary, for, after the person has talkel out his grievance and listened to a little advice he generally finds that he has no trouble. To handle these cases calls for much tact, for here is where you stand to antagonize the overseer if the case is not properly handled. This is an important part of the work, for a small grievance left to smolder makes a martyr, and a martyr soon has a following.

The records kept in the employment office give you a line on your plant that no other department does. As some one has aptly said this department has its fingers on the pulse of the mill and it is a very interesting pulse to feel.

After the foreman or overseers have been to you with some of their troubles, whether personal or relating to the work, and you have met them in the right way, they see that you and your department are not in the mill to spy on them or cause them more trouble, and they meet you on friendly terms.

The medical department very soon has its full clinic. An employee finds he can get relief from small ailments, and go back to his work instead of losing part of a day. He also finds that if a little cut is properly attended to at first, it soon heals and causes him no trouble.

The social service worker does as much towards keeping a permanent force as any one else, especially among your foreign employees. Many of the men have families on the other side, and it makes their lives here unnatural ones

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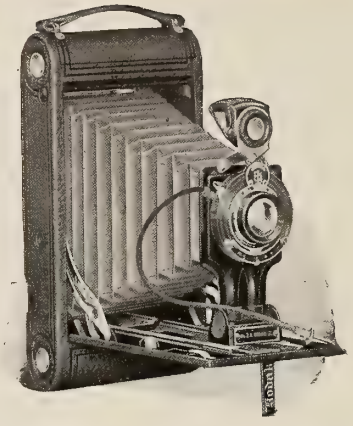
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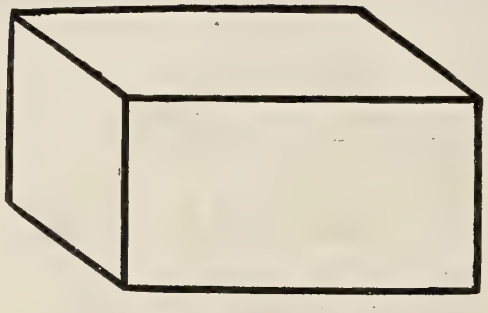
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with the consequent evils. Many of the girls are here with only a brother or father, and get into trouble in many ways, for lack of advice or control. So many of our foreigners get into the courts, and mostly through ignorance. The ordinary judge and lawyer is not interested in the case of "just a Greek," who frequently does not get a fair deal. These cases keep many of the employees out, either as witnesses or from curiosity. After you have won the confidence of the people they will come to you, instead of rushing into court, and many cases can be settled by the service manager. When a foreigner once trusts you, his confidence is as that of a child, and he will abide by your advice. I could cite many cases where time and employees have been saved for the mill by the social service department.

Keeping of Records Useful

The keeping of records and looking up of absentees is an important part of service work. This gives you one of the best lines on an employee, and also gives you a chance to go into his home. To analyze the reasons for absences and to compare one department with another tells you many things that are helpful. The records of the hospital, when analyzed, frequently show up lack of safeguards or strain in work.

If there are any weaknesses in a mill the records of the service department will find them out. Such a department will also assist in correcting the weaknesses. In a mill of from five hundred to seven hundred employees an employment-service department could be maintained with the following force. The service manager could be either a man or woman; the personality, ability and training being the important factors. Under the manager would work the employment manager, either man or woman, though a woman is preferable, on account of her ability to read character, which is absolutely essential in an interviewer of employees. The duties of the employment manager are to interview and take the history of all new employees, to keep all records of the department, which will include a record of pay earned and time lost by each employee. Also he must assist in securing help.

The Various Departments

In the medical department, there should be a trained nurse in the first aid room, with an assistant who can do first aid and take charge of the hospital if the nurse goes out to advise with the family of an employee about sickness. The assistant should also help keep the records of the hospital, and on days of the doctor's clinic she should get the patients from the department so that the least possible time is lost from work in the mill. The services of a doctor are necessary for examining new patients (this requires about an hour twice a week) and for holding an hour's clinic three times a week. Accident cases of any importance are sent to his office. This force keeps the health of the mill well taken care of.

The service manager does the social service work, figures the labor turnover, makes comparative tables of absentees, and does the visiting in special cases; the regular visiting of absentees, unless too heavy, can be handled by the hospital force.

The chances for betterment work by this department are many, including night school, mothers' clubs, day nursery, play grounds and recreational activities, but they are the by-products of the work and not the essentials.

The opportunities for such a department in a small plant are even greater than in one that runs into the thousands of employees. The importance of the work is being appreciated by the far-sighted employer and the Government is encouraging its establishment in all plants doing work of any importance for them.



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WOMEN'S WORK IN RAILWAY OFFICES

In respect to accuracy, female clerks have been found the equal of men. In compilation work girls got through quicker than men. But when it came to assembling a mass of tabulation, the male clerk showed superiority

By J. L. PAYNE
Comptroller of Statistics, Ottawa

(From the "Railway Age Gazette")

When Canada began sending troops in large numbers to France the railways were among the first and chief sufferers from the shortage of labor which followed. In view of the general character of railway employees, as to physical fitness and those qualities which are broadly comprehended in the word "manhood," this was not surprising. Wherever you find him there is something in the nature of a railway man which suggests a ready responsiveness to such a call as the war created. He is courageous, self-contained and sympathetic. Beneath the veneer of a bluff and often blunt exterior he carries a warm heart. I know railway men from long contact with them at their work, and this sums up my diagnosis of them. Be that as it may, they threw themselves by thousands into the great struggle, and hundreds of them now sleep "where poppies blow in Flanders."

The Canadian Pacific and Grand Trunk together lost 15,000, and this fact at once presented an acute problem to those charged with the duty of keeping up the working staff. The adjective is used advisedly, for while in 1915 a marked decline in traffic took place, in 1916 and 1917 business swelled to an unparalleled volume. This accentuated the losses from enlistments, and administrative officers were at their wits' end to keep the wheels moving. In one staff of 700 there were in the first six months following the outbreak of war more than 900 changes. It is not my purpose to deal in this short sketch with that aspect of what happened, but to limit my observations to the measures which were taken to recruit the general office staff. In short, I shall write almost wholly of what was done to meet the demand for clerical help.

Not a New Development

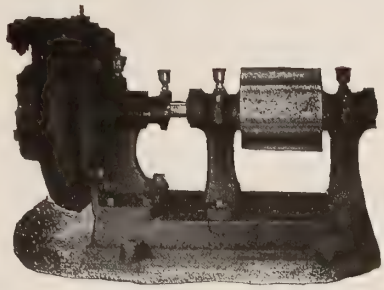
Obviously young men were not to be had in considerable numbers. Only those who were ineligibile for military service were available, and the young fellow who could not take some place in the campaign was often unsuitable for the strenuous work of a big railway office—for it is both hard and trying. In this situation it became necessary to fall back on women. Now, contrary to my suspicions, it was not a new thing to utilize female clerks. By degrees young women had been taken into certain branches of the head offices, until in 1914 they made up forty per cent. of the staff in the passenger and freight auditing divisions. This was at least twice the proportion which I had assumed; but it was no new thing to discover I was wrong. Such experiences are slowly developing a chastened spirit and a shrinking from positiveness in relation to many things. Wishing to learn on the spot what had been the general results of this revolution in the larger railway offices, I ran down to Montreal the other day and got into personal touch with a number of the principal departmental heads. I was anxious to find out a great many things growing out of this new situation, and it was my good fortune to find everybody communicative on the subject. My inquiries were distributed over a number of heads, and in the categorical order in which they were made I shall proceed without further introductory remarks to present the answers.

The Canadian Pacific and Grand Trunk employ upwards of 1,500 female clerks. Fifty per cent. of these have been

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brought in as the result of war conditions, and to that extent they may be said to have taken the places of men who were enlisted from the general offices. These recruits did not, as has been said, enter a new field. There were other girls there who had been initiated and had become accustomed to the work and to the conditions. This was clearly fortunate for both the railways and the new clerks. In groping for an answer to the comprehensive question as to what measure of success had attended this employment of female clerks on a large scale, I found myself compelled to approach final conclusions by a series of stages. The issue turned sharply on a comparison with men, and in pursuing that parallel a number of striking facts were disclosed. I wanted to know, for example, in what respects girls had been found either superior or inferior to male clerks, whether or not they had more readily adapted themselves to certain types of work, to what extent they had revealed definite defects, and so on. Along these lines, therefore, the inquisition proceeded.

Accuracy and Responsibility

The chiefs told me that in respect of accuracy they had found female clerks on the same footing as men. This was in compilation work. Neither sex had shown a clear superiority; but the girls got through their assignments quicker and were contented in their plodding. So that, while not a whit more liable to make mistakes, they accomplished a slightly higher volume of work as a group. This gave them the edge in the rivalry; but at that point a strange difference was asserted. When it came to assembling a mass of tabulation sheets and striking what are termed "balances," the male clerks showed an undoubted superiority. The girls shrank from any complexity, or what might broadly be defined as responsibility.

This preference for simplicity of task was best described by the inspector of a large bank to whom I incidentally appealed for collateral information as to his experience in the exigencies brought about by the war. "We have not," he said, "a young man in our head office who would hesitate before taking any promotion offered to him. He would without doubt answer in the affirmative if asked whether or not he felt able to hold down the general manager's job." And that is true of young men in all stations. Many of them might lack the ambition and self-confidence which would stimulate positive effort toward high places; but very few of them would shirk the responsibility involved. "It is different with girls," said the inspector; "they prefer to work along the lines of a definite pattern which is congenial by familiarity rather than to venture upon tasks which are more or less intricate or executive in character." This, it might be observed, probably proceeds as much from a dread of failure as an innate sense of limitations.

A Defect in Women Employees

Right here would seem to be the place for the recognition of what, for want of a better definition, must be classified as a defect in the employment of female clerks. The idea in a broad way is touched upon in N. H. Greenberg's letter to the *Railway Age* of September 6th. In all offices experience is very properly appraised at high value. It represents the just basis of salary increases, and carries with it the expectation of promotion to positions having to do with the direction of a subordinate staff. It is not so much that young women are wanting in the capacity to direct others as that they have no aspirations in that direction, and, with but few exceptions, are temperamentally unsuitable. In the rarest instances, moreover, has it been found practicable to place women in charge of men. The latter resent such control. Then there is the uncertainty of their tenure. Just when they have

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attained to the highest measure of usefulness they are apt to get married.

When a man takes a wife his anchorage is assured; but when a girl enters into matrimony she is invariably lost, with all the training she has acquired. The brighter they are the greater is this danger, as I know from a bitter experience. I have had ten office assistants of the gentler sex, and seven of them were lost to me through marriage. I am in mortal dread that the eighth is moving stealthily in the same direction. This is a factor in the whole problem of female labor which not only cannot be ignored, but which is a distinct and irreparable weak spot from the employer's point of view. The Canadian Pacific and Grand Trunk lose 25 per cent. of their female clerks every three years because of marriages; and, strange to say, not more than three per cent. of these lost clerks marry other clerks in the railway service.

The Wages Paid

Before the war female clerks started in the railway offices at $30 per month and went up to $90. Now the minimum is $55 and the maximum $105. Young men were paid on a more liberal scale. The McAdoo award, which was adopted in Canada, placed the sexes on an equal footing. Where they do the same work they receive the same remuneration. This has had the effect of making it easier to secure competent clerical help. I inquired as to what had developed along this line, and was told that, whereas girls had been readily obtainable in the early months of the war, there was now some difficulty. The demand from other industries had created a competitive situation; so that, on the whole, the railways were not able to exercise the same selective privileges as they had done four years ago. This has made for the employment of mediocre skill in some measure.

Allusion has been made to the difficulty in having female clerks move up to high posts, and in that connection it was pointed out that men do not like to be under the direction of women. That is not surprising when the history of the race is taken into account; but it is amazing that another obstacle to the advancement of women arises out of the resentment of their own sex. Girls would rather receive orders from men. They fret under the control of another woman. No matter how this fact is viewed, there is no escape from the conclusion that at bottom the real cause lies in the other fact, existent since creation, that every woman is every other woman's rival. Hinged to that unwritten law, which men are never able to understand nor to recognize, are other and very subtle difficulties which are inseperable from the employment of women in groups. They take strong likes and dislikes, which rest on reasons no man can ever find out. "I cannot take up that work," says one, "because it would bring me into contact with Miss B. I don't like her, and never should like her." The patient chief, who has not after many years of study got one whit nearer the psychological foundation of the matter, suggests: "You do not know her. She only came in a week ago." No use, however. "Of course I do not know her," is the reply, "but nevertheless I dislike her, and would rather leave than work either with her or next to her." This may seem like introducing trivialities. I assure you the chiefs of divisions do not hold to that view. These temperamental and sex eccentricities are part of the very warp and woof of the whole fabric, and are only small to those who are inexperienced.

Numbers Available

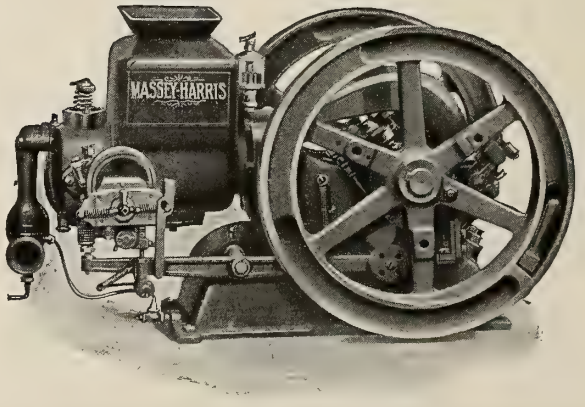
"Have you succeeded in meeting the dearth of male clerks by the substitution of female clerks?" was my final question to the executive heads of the Canadian Pacific and Grand Trunk. While the reply was in the affirmative, there were

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large and somewhat important qualifications. Some of these have been presented. One chief of a large branch was quite convinced that, while the work was being done as accurately and effectively as in the years of peace, it was costing more. He was prepared to say that, allowing for loss of time from illness and other interferences, it took four young women to do the volume of work formerly done by three young men. While this had not occasioned the same relative increase in cost, it had nevertheless added to the expenses in some degree. From what others had told me, I am disposed to think this additional cost arose in large degree from the difficulty, to which I have alluded, of getting girls to change readily from a class of work with which they had become familiar to another. It had not cost more for minor clerical services.

As to the permanency of existing conditions in railway general offices, I found a consensus of judgment on the point that girls had come to stay. It would be premature to speak dogmatically; but it would be surprising if railways should be immune from the obvious change which has come into nearly all the affairs of life. Women have not only invaded practically all fields of human activity, but they claim the right to remain. They usually have their way. Whether or not, in the final reckoning of real values, this will make for betterment and happiness, time alone will tell. I have no disposition to speculate; but I am not isolated in wishing that women had bent all their resourcefulness and exalted influence in other directions. Perhaps the forces of adjustment will operate side by side with this momentous movement, and all will come out right.

Space does not permit my taking up the place which has been given to women in the mechanical branches of the railways. The facts, however, have been presented by others in fairly full measure. Both the Canadian Pacific and Grand Trunk now employ hundreds of women in the workshops, where only men were found anterior to the war. On the whole, the experiment has been successful. Recruits from all classes in the community have entered the shops in large numbers. They like the novelty and freedom given by the uniform they wear. The men accord them chivalrous treatment, and they have displayed an adaptability which is little short of marvellous. They do a great variety of skilled work, and do it singularly well. This is strikingly true in the paint and upholstering shops. They also operate lathes and other machines with skill and all-round efficiency. In some varieties of piecework they have attained a speed unequalled by men. They make good earnings, and it looks as though another pre-emption has been lost to the male sex.

These general conclusions accord with the recently published report of the United States Employment Service at Washington. I have no disposition to enlarge on this aspect of the situation as created by the war, but the question is irresistible: What would have happened to the railways if women had not come in this way to their rescue?

What to Avoid in Letter Writing

Avoid—"Beg to acknowledge," "Beg to inquire," "Beg to advise," etc. Don't beg at all.

Don't say "Inclose herewith," "Herewith" is superfluous. Don't "Reply" to a letter; "answer" it. "Reply" to an argument.

Don't use—A long or big word where a short one will do as well or better; "begin" is better than "commence," "home" or "house," than "residence," "buy" than "purchase," "give" than "donate," "start" or "begin," than "inaugurate," etc.

Avoid the appearance of sarcasm. Don't try to be "funny."

Don't write your name or initials so that no one else can read them.

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TELL-TALES OF THE WASTE BASKET

A waste house should be a reclaiming station or a receiving station for goods which are salvaged at a value proportionate to the reclaiming efficiency of the plant. All waste houses receive and harbor more or less material of a greater value than is intended.

By "WASTE HOUSE"

(From the "Canadian Textile Journal")

To an observant mill man, the "waste house," as it is commonly termed around all mills, has many tell-tales indeed. To the careless mill man, the waste-house is never more than a general dumping place, and a waste house is usually what it is called, viz. a place where good material is wasted, or at least where good material is sold for less than its real value because not placed where it ought to be, either before or after it arrives at the waste house.

The waste house is usually more of a wasteful place than a reclaiming station, because, as a rule, it does not get proper supervision. The name of the waste house should be changed to some other more important and significant name. It could be very properly called the Reclaiming Station. And that is what a waste house is, or should be, viz.: a reclaiming station or a Receiving Station for goods which are salvaged at a value proportionate to the reclaiming efficiency of the plant.

It must be conceded that all waste houses receive and harbor more or less material of greater value than is intended by the best of mills.

There are many reasons why the waste house is a more wasteful place than is necessary, as the following list will show:

(1) It is "so easy" to throw good material aside and on the floor.

(2) It is "so hard" to pick over waste and to reclaim the good material mixed in with the bad.

(3) Very few hands realize the value of the raw material being wasted.

(4) Less, still, does the average workman give thought to the value of waste material he discards and to the cost of manufacturing same to the point where it is thrown aside and rejected as waste.

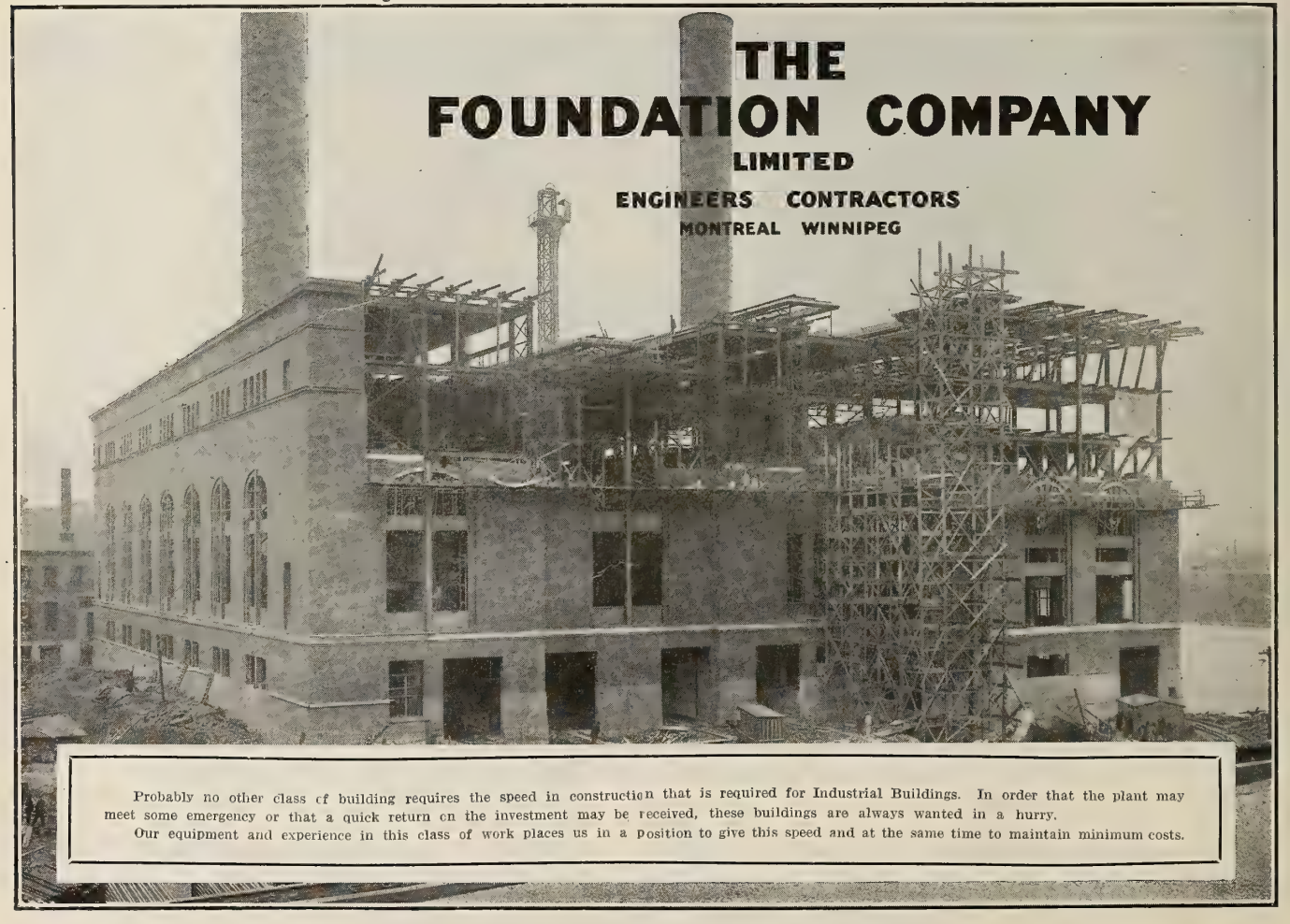
(5) Then, too, the waste end of any mill—that is: the gathering and care of same, and of everything connected with the waste house, is attended by a class of inferior hands, as a rule.

(6) The waste end of any plant also has the poorest command of the entire supervisory force. Almost any man could earn his salary, and save money for his company by simply digging down into the waste end of his business to see what he can accomplish toward reducing the loss.

Apply Only to Rejected Material

The above six reasons for throwing away good stuff have nothing to do with the processes, nor the manufacturing end. They have to do with the handling of materials—of "wastes" so-called, or in other words, rejected material good or bad.

(7) The remedy for above evils is to have one competent, responsible man to look after the waste reclaiming interests of the ordinary sized plant. This man should be fully conversant with manufacturing conditions and faithful





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to the limit in checking up all waste. He should have sufficient assistants, according to size of plant, to do the work properly, and the department should be self-sustaining, i.e., the showing made by this highly efficient re-claiming organization should be profitable enough to more than pay for itself. In other words, the less work this gang would have to do, the better it will be for the mill, and the more it would show that the mill was efficiently managed. Strange as it may seem and unlike other departments of a mill the less production they would have to show for their labors, the less it would cost the mill.

Functions of Re-claiming Station

(8) The re-claiming station should be a daily receiving depot for all the various departments. To this department should be sent everything discarded in the mill—such as worn out brooms, brushes, broken picker sticks, broom heads, castings, shuttles, etc. Everything rejected as of no further use to the mill, should be turned over to the re-claiming station. Every parcel should be properly tagged and numbered, and sent to the "waste house." Everythng should pass through this department before being sent to the dump heap.

(9) At this point everything of any value will be re-sorted out, inspected and re-classed.

(10) Here is where the true tell-tales of the waste house begin. It will be found that nuts, bolts, washers, nails, rivets, oil cans, bobbins, skewers thread guides, belting, wood and machine screws, gears, rings, spindles, rails, tools, and machine parts—all kinds, and hundreds of things too numerous to mention will turn up and be reclaimed. Oftentimes it will also be found that things rejected—like broken parts—can be repaired.

In the sweepings will be found almost everything mentioned, almost everything except dead men, and it is a wonder that an odd set of lazy bones is not to be found now and then.

Among the sweepings will also be found a great deal of rejected waste of greater value than sweepings—such as clean cotton waste, clean thread waste, soiled good stock that should not have been soiled if not swept and mixed with the sweepings. It will also be discovered that wastes are often mixed by the hands, and that almost all wastes are produced in excess quantities.

What Has Been Accomplished

Many mills after giving the above matters careful attention, have reclaimed much of real value. One mill reclaimed a 5 per cent. equivalent of the consumption of its raw cotton. That is to say, 5 per cent of its raw cotton was being wasted for want of a better system of following up the waste. Another plant studied its raw and remnants disposition. It was found that pieces of the valuable cloth manufactured was being used in all parts of the mill for almost every conceivable purpose. Even the firemen were using about 15 yards per week as sweat wipers. These pieces were usually about one yard long and they had never been washed or reclaimed. This item alone amounted to about $1,000 per year. Altogether it was found that about a bale of cloth per month could be re-claimed—or the equivalent of $4,000.00 per year, which was also equal to ½ of one per cent. of the product of the mill. And so it often is with everything else about a mill.

Wasted oil is a large item. Wasted travellers, top-rolls, belting, strapping. There should be a constant effort made to educate all concerned to the point of securing conservation in all lines. Teach the help the value of materials in money; show them the wastes in money equivalents. Teach them so

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that they will understand that while it is impossible to get something for nothing it is very easy to get nothing for something, and that is what waste is. The only man of whom it is said he ever got something for nothing was Mark Twain. Walking into a book store said he: "What is the price of that book 'Innocents Abroad'?" "$2.00," said the clerk. "If I pay cash do I get 10 per cent. off?" said Mr. Twain. "Oh, yes," said the clerk. "Yes but I am a publisher, and am entitled to a discount of 50 per cent." "Yes," said the clerk. "By the way, I am also an author and entitled to an author's discount of 50 per cent.!" Whereupon the clerk handed him the book together with 20c. in cash.

Gentlemen, save the good material from the waste pile. Cut the waste down and take in the cash discounts. Some mill men would have to stop dotting the I's and crossing the T's to save the ink, but they would never look into the waste bag for dividends.

No less than 2,656 companies sought and secured incorporation under Dominion Letters Patent since the commencement of the war. While a goodly number of these were created and incorporated purely for war purposes, the figures also reflect a somewhat remarkable industrial expansion in Canada during the four years. From August 1st, 1914, to the end of the fiscal year, only 318 companies secured incorporation. During the succeeding fiscal year, 600 were incorporated, during the next 683 and during the fiscal year of 1917, 18,651. From March till November of the present year, 399 were incorporated. The total capitalization of the 2,656 companies securing letters patent was $1,168,749,426. The highest total capitalization was reached during the past fiscal year ending March of the present year, when it reached $40,000,000 as against $29,000,000 the preceeding fiscal year.

GREAT BRITAIN'S ELECTRIC FURNACES

Where current is supplied at a reasonable price the electric is considerably more economical than the coke furnace, and when electricity is produced at lowest cost there will be great developments with the electric furnace

(From "British and Latin American Trade Gazette")

During the war there have been notable developments in manufacture of steel by the electric process. Sheffield, with its long and high reputation for what is called crucible steel, was reluctant to adopt the electric furnace in the early days of its history. Admittedly no type of the newer furnaces—and there were about a dozen before the war—was perfect. The larger electric furnaces, especially, revealed defects. The peculiar conditions created by the war caused steel makers in Sheffield to pay attention to the possibility of improving the electric furnace, and marked success has attended their enterprise.

The abnormal demand for munitions has been the chief factor in the new developments. Before the war had been in progress many months armament makers found themselves accumulating enormous quantities of turnings, borings, screwings, etc. This was due to boring out and planing guns, shells, and so forth. In ordinary times this class of scrap, though it was composed of very high grade steel, was of comparatively small value owing to the difficulty of remelting without losing the most valuable alloys. As only small quantities of these special turnings, etc., were made, not much attention was given to their economical utilization. When the manufacture of munitions on an enormous scale had to be

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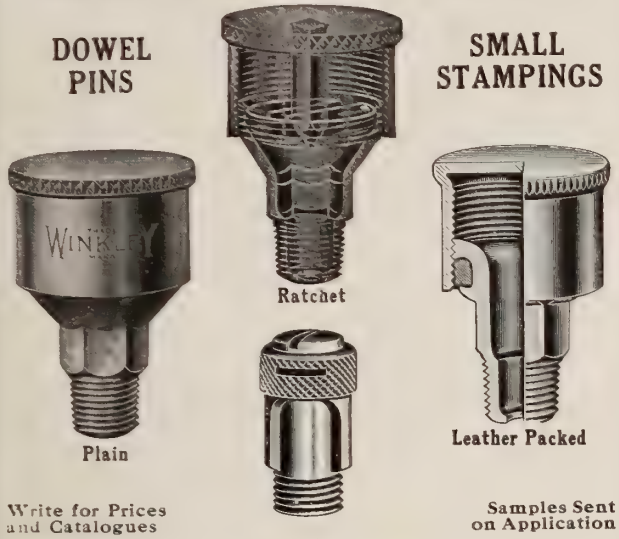
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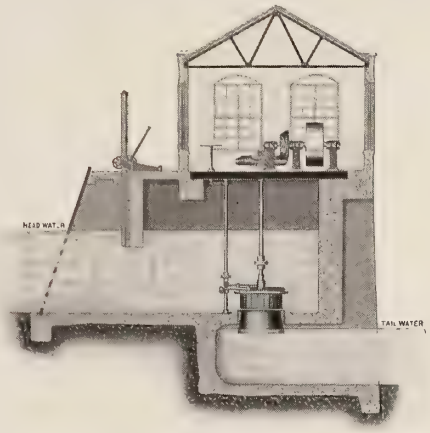
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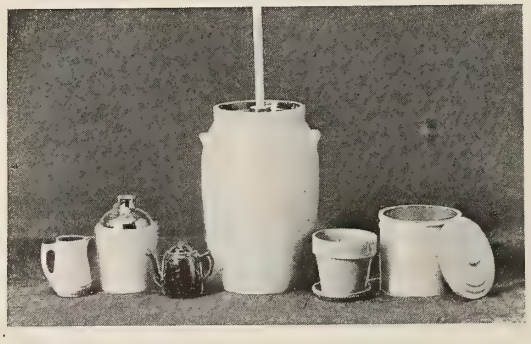
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undertaken it was seen that very particular attention would have to be devoted to this problem of utilizing huge quantities of rich scrap.

Steel manufacturers, who had hitherto held off the electric class of furnaces, now turned their attention to the new type. It was urged by the advocates of electric melting, or refining, that by the new process all the nickel and almost all the chrome and other valuable alloys could be recovered. Still, certain defects in the electric furnace had to be recognized. Even in the progressive United States, where they take most kindly to new inventions, it was freely admitted that the best type of electric furnace was far from perfect, especially if of large size. A group of Sheffield metallurgists set to work in earnest to see what could be done towards perfecting the electric steel melting process, or rather the large electric furnace. The result is that to-day there are two types of purely Sheffield electric furnaces that practically fulfil all essential requirements. One is the Greaves-Etchells and the other the Stobie furnace. These have been built, and continue to be built, in large numbers.

Fed Entirely on Turnings

Until the introduction of these two types there was no large electric furnace that could take a full heat of turnings, etc., or steel scrap. It was necessary to use more or less large percentages of raw materials, such as pig-iron, or bar-iron, along with the scrap. Now it is possible to feed an electric furnace entirely on turnings, etc., and to have "boils" of as much as 15 tons, against a previous limit of about 2½ tons. The ingots produced are thoroughly sound steel. The joint inventors of the Greaves-Etchell furnace are both Sheffield men. Mr. Greaves is an expert electrical engineer, and Mr. Etchells is a metallurgist of the highest standing. The reception this furnace is meeting with may be gathered from the fact that about fifty of them have been built or ordered since the beginning of 1916. The Greaves-Etchell furnace is so designed and equipped that it is free from the chief, if not from all, the material faults of pre-war inventions in this line. Above all, it is claimed that an absolutely even temperature is secured throughout the melt of steel, and that the furnace is so constructed that practically all the heat is actually employed, none worth mentioning being wasted.

Mr. Stobie, the inventor of the Stoble electric furnace, is also a Sheffield man. For the Stobie furnace it is claimed that the following highly essential conditions are secured by it: (1) Regularity of composition; (2) lowering of sulphur and phosphorous contents; (3) absence of gasses; (4) higher yield of sound ingots; (5) positive control of all furnace operations. This furnace, using nothing but turnings, borings, etc., or scrap made in the finishing processes of steel manufacture, will produce 80 tons of sound ingots per month, per ton of furnace capacity.

Defects Have Been Surmounted

The chief defects in pre-war electric furnaces are surmounted by the improvements effected by Mr. Stobie, and the future of steel manufacture is given a new possibility. At present the Stobie is the largest type of electric furnace, and it produces a steel more uniform and pure than either the smaller and more costly working types of electric, or than the best open-hearth furnaces. The world's record for ten-ton charges is held by the Stobie furnace.

Whether the electric furnace will supersede the crucible, or whether both will work contemporaneously, time alone can tell. It is still contended by some manufacturers that the crucible must be retained for the making of the very highest classes of tool steels. Again, in competition with the large Bessemer converter and the open-hearth steel furnace, the place of the electric furnace is not yet definitely fixed, though

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some authorities predict that the electric will eventually beat all rivals, even the blast-furnace, for pig-iron making. The electric furnace has come to stay—of that there is now no doubt.

One advantage of the electric furnace is that it requires less space per unit of output than a crucible plant. The initial cost is about equal to that of the crucible, but the saving of space is important. Another advantage is a marked saving of labor. Not only does the electric furnace require fewer hands, but the working conditions are much cooler for the operatives by reason of the closed-up nature of the new type. The cost of electricity is an important point. Where current is supplied at a reasonable price the electric is considerably more economical than the coke furnace. When this country begins to harness the tides, to utilize the water power latent in our rivers, or scientifically to convert our coal into energy at the mines, and so produce electricity at the lowest possible cost, we shall see immense developments with the electric steel furnace.

Those Letters You Sign

The Selling Value of the Typewritten Word is a Very Real Thing and Should be Studied

By JOHN COTTON DANA

(From "The Nation's Business")

The letters that leave your office every day, your silent salesmen, are always at work for you. Every piece of typewriting that goes out signed by you is making friends, customers and sales for your company. Much selling value, too, lies in letters which are not selling letters at all. And even the unimportant notes written by your stenographer often bring orders through their skillful use of apt words and phrases. The spirit in which your executives have answered the letters that come to their several desks has made friends for your company. The clear, simple, slightly humorous and intensely human way in which all possible friends and customers—and this means all correspondents—are approached on paper, has built up that good impression of your firm which underlies its success.

Briefly put—every item of your corespondence is an advertising item. The selling value of the "typewritten word" is a very real thing and every letter signed with your firm's name contains some of the factors that stimulate desire for your product in the mind of the man to whom it is addressed.

Even the correspondence you call "routine" is always selling your products. You carefully and almost prayerfully construct your "sales letter;" but it is the ever-present friendly and genial note found in all your out-going mail that has made for the sales letters a word of welcome everywhere.

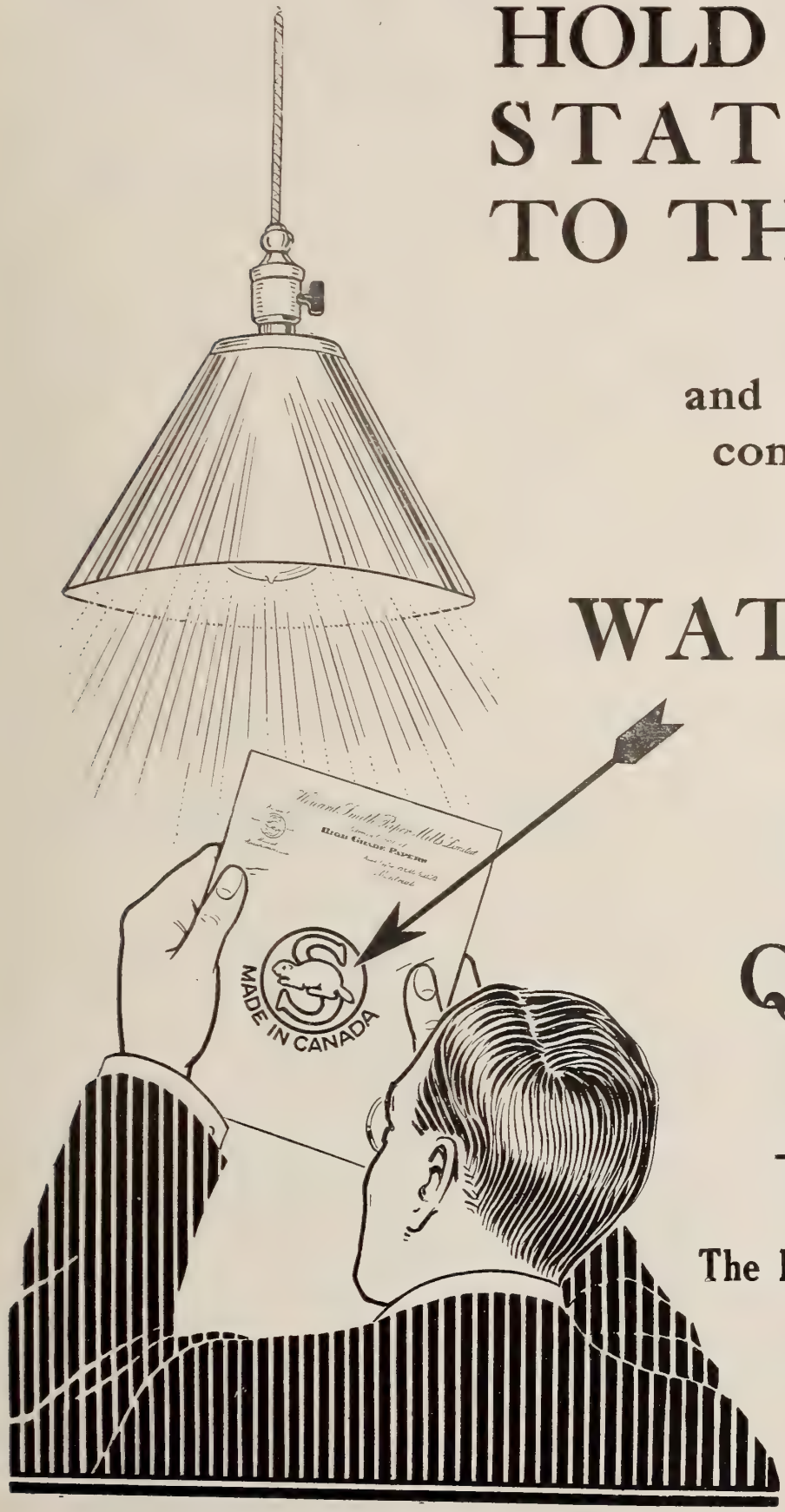
All these things are true of your firm, of course! Of other firms they are equally true. The experiences of other firms in this field of letters can supplement yours to your profit.

The correspondence men of many large firms met last October in a "Better Business Letters Conference." Their proceedings tell what the other man is doing. Titles of a few typical papers read and discussed are "Sales attitude, its place in every letter," "Training letter writers," "Getting better letters." Here is practical help to your correspondence department. Copies of the proceedings containing these papers are for sale at $1.00, by Mr. H. N. Rasely, Norton Company, Worcester, Mass., the secretary of the convention. Some firms print "Correspondent's manuals" which make good reading for your executives and their staffs. The titles of some of the pamphlets published by the B. F. Goodrich Rubber Co., Akron, Ohio, show the kinds of advice that help the men who are writing the Goodrich letters: "Form letters that sell," "Good paragraphing makes letters forceful," "Clearness in a business letter."

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PLACE OF PHYSICIANS IN INDUSTRY

The real value of the physical examination is in the information which is obtained and the supervision which is subsequently exercised over those who are accepted for employment, a more necessary work than ever before

By C. D. SELBY, M.D.
Industrial Hygienist, U.S. Public Health Service
(From "Safety Engineering")

There is a rapidly increasing demand for industrial physicians and, in justice to both the medical profession and industry, men who desire to practise this branch should have facilities for training. Educational institutions should recognize industrial medicine as a very definite branch of practice, definite in its application of all branches of medicine rather than in the pursuit of any one particular line. Harvard University has recently inaugurated a course of instruction and research in industrial hygiene which will undoubtedly prove an effective start toward this end. In this connection there are now many well-organized industrial medical departments which may very well serve as institutions for training of recent graduates in lieu of or in association with their interneship in hospitals.

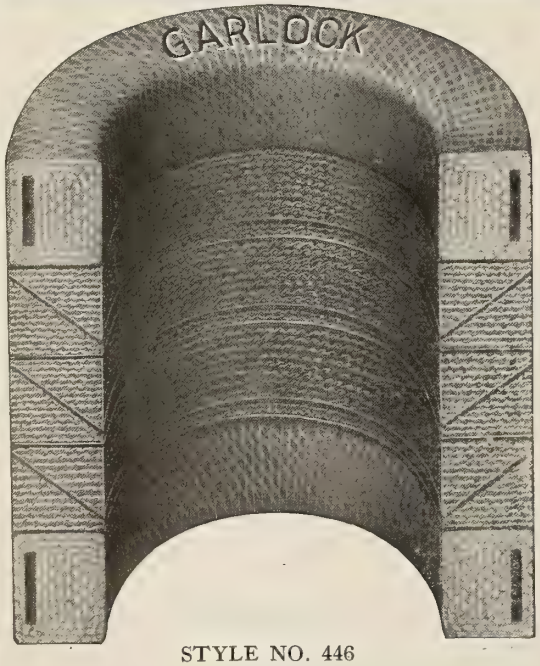
Several classes of men were found actively engaged in industrial work. They are those who have drifted in, those who have taken up industrial work by choice and those who have accepted it as an expedient. The drifters are usually those physicians who have had emergency cases referred to them and were subsequently invited to assume charge of dispensaries when they were organized. Some of these men are making good and others, as is usually true with drifters, merely follow lines of least resistance. They are apt to become what is known as finger wrappers—merely routine workers. The men who have gone into industrial service because of choice are, almost without exception, men who have determined to make it their careers. They have studied the problems of industry and have sought to adapt their skill and knowledge to industrial needs.

The men who have accepted industrial service as expedients are of three classes: The recent graduates who have seen in it opportunities for a ready cash return, elderly physicians who have seen in it opportunities for semi-retirement and a regular income, and others who have seen in it opportunities to establish clienteles from which might subsequently be derived patients for general practice or surgical work. As a rule these men retire from industrial service as soon as their ultimate objects have been attained.

Kind of Physicians Required

Industrial physicians may also be classified according to their personal qualifications, referring particularly to their abilities to direct medical departments or their limitations to the details of ordinary routine. The practise of medicine is fundamentally detail work, and a clever practitioner is ordinarily one who is trained to observe and attend to details. There are instances among physicians, of course, where administrative capacities have refused to be stifled by medical training and experiences. By surrounding themselves with capable assistants, and directing their efforts intelligently, these physicians usually become very successful and leaders in their profession. Such men make very good industrial medical department executives.

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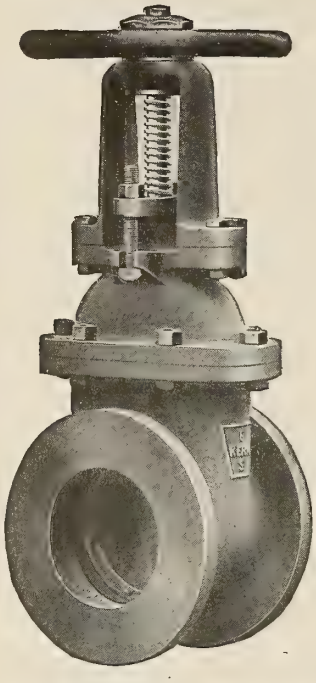
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medical departments, otherwise they must select average physicians and, remembering that medical education and experience do not necessarily qualify doctors for industrial service, provide means for training them.

Whole-Time, Part-Time or Detailed Medical Service

There seems to be considerable difference of opinion as to whether whole-time or part-time service is the better. The principal argument for the part-time service is that it permits the physicians to remain in contact with the practice of medicine and, therefore, to be better physicians. The principal argument against part-time service is that so long as doctors remain such they are not wholly industrial physicians. Observation has shown that the part-time men are more inclined to devote the majority of their thoughts and energies to that portion of their practice which pays best, which is, of course, their general work. Arguments against and for part-time service are arguments for and against whole-time service. It was noted that whole-time physicians, as a rule, render more varieties of service for employees and are, consequently, more valuable to their employers. Detached physicians, or those who render services only on call, are almost without exception surgeons, and their work is limited to the care of injuries.

Of the 155 medical departments which were analyzed, 43 per cent. rendered whole-time service, 33 per cent. part-time service, and 24 per cent. rendered service only on call.

The care of injured workmen is to employers the most evident and convincing reason for medical service and is, therefore, the predominating function of industrial medical departments. An interesting observation was made in this connection, and it is that only 51 per cent. of the physicians in whole-time medical departments attend serious injuries, while 82 per cent. of the physicians in part-time departments and 100 per cent. of the physicians who render service only on call take care of their major cases.

Industrial medicine has become so comprehensive in its scope that it is obviously impossible for one man to practise all of its branches. This is indicated further by the tendency of industrial physicians to refer other lines of work to the specialists, as, for instance, patients who require X-rays, eye work, laboratory diagnoses, etc.

Minor illnesses are treated in 94 per cent. of the whole-time departments, 82 per cent. of the part-time, and 8 per cent. of those in which medical service is obtained by summons. A few industrial physicians refuse to care for minor illnesses, on the ground that they should be attended by private physicians, and some hesitate in the fear that treatments may imply obligtion for payment of compensation in cases of serious illness or death. Major illnesses are treated by a trifle more than 4 per cent. of the whole-time departments and somewhat less than 4 per cent. of the part-time departments, usually as a function of beneficial associations.

Means for Laboratory Service

Although many dispensaries have limited facilities for laboratory work, only 15 per cent. of the whole-time departments are provided with means for a wide range of laboratory service, while those facilities under part-time service are usually limited to the making of urinalyses. Inasmuch as industrial medicine has just as much need for laboratory work as the practise of medicine elsewhere, it must be assumed that industrial physicians are not availing themselves to the utmost of this aid to the scientific practice of medicine.

Physical examinations of applicants for employment are being made in 76 per cent. of the whole-time departments, 33 per cent. of the part-time and 3 per cent. of the detached; for the most part they are poorly made, amounting to little

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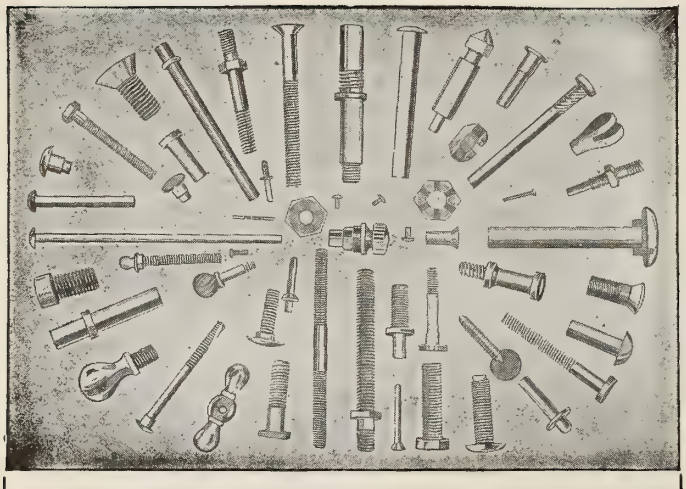
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more than inspections. The real value of the physical examination is in the information which is obtained and the supervision which is subsequently exercised over those who are acepted for employment, though defective.

At a time like the present, when there is a material shortage of labor and when people who are not used to being employed in factories, mills and other industrial establishments are accepting employment, the physical examination as a means for determining fitness for labor and its maintenance would seem to be more necessary than ever before. Physicians, therefore, are admonished to make the examinations thorough and to familiarize themselves with working conditions, or job requirements, in order that they may intelligently recommend lines of work for those who happen to be physically defective; they are also urged to supervise all employees carefully after their acceptance and assignment to work.

Factory Inspection a Function of Industrial Medicine

It would seem that the presence of insanitary conditions in manufacturing establishments might prove inimical to the health of employees, but in spite of this comparatively few industrial physicians make inspections of their establishments, except upon special occasions and then usually only on request.

Next to the physical examination, health instruction is probably the most important activity of industrial medicine in the prevention of diseases, yet this activity receives little consideration.

First Aid Necessary Under Certain Conditions

There is a well-established feeling among industrial physicians that first aid by fellow workmen begets unsatisfactory results, in that the recipients of trivial injuries are inclined to consider the first-aid treatments sufficient and do not, therefore, visit the dispensaries for subsequent attentions. Yet there is a real need for first-aid service.

Safety Work Not a Function of Medicine

Although the prevention of accidents is not, properly speaking, a duty of industrial physicians, it was observed that 32 per cent. of the whole-time medical departments and 9 per cent. of the part-time departments assist in accident prevention by sitting with safety committees or by accompanying safety inspectors in their tours of inspection.

Conclusions

In conclusion it might be said that:

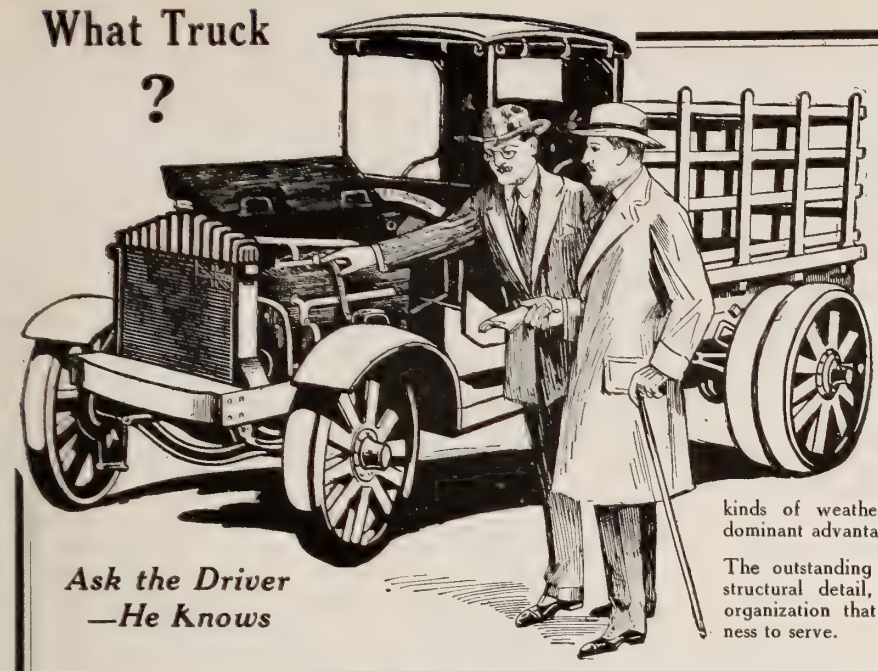
(1) Industrial physicians are blazing new trails in medicine and in industry. They should have the help of the medical colleges and they should exert themselves to instruct the profession generally in the ways of industrial medicine by frequent publication of their observations and experiences.

(2) Although there are now physicians of high attainments in industry others of equally good training and qualifications should be attracted. This may be done if those now engaged in industrial service demonstrate that it is a field worthy of the ideals and traditions of medicine and possessing opportunities for scientific practice and research.

(3) Industrial medicine is still in the development stage and more or less on the trial by industry. The principles are right, the theories are sound. Industrial physicians have but to do their work thoroughly and to apply their talents whole-heartedly to prove their case.

(4) And when industrial physicians have demonstrated their full value, have shown that they are able to assist in the stabilization and the maintenance of efficiency in the working forces, their remuneration will be commensurate and satisfactory.

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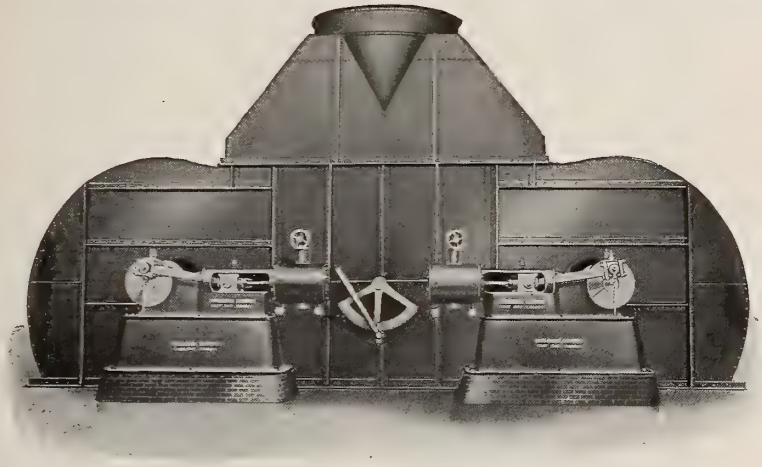
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PLANNING NEW TOWNS IN CANADA

Some observations on the plan of Ojibway, the new industrial town to be built by the Canadian Steel Corporation, an off-shoot of the U.S. Steel Corporation—Planned to accommodate 20,000, under wholesome conditions

(From "Conservation of Life")

For many years, all over the North American Continent, there has been a strong tendency on the part of manufacturers, having occasion to erect new plants, to remove from congested city centres to more open and cheaper locations in suburbs of cities and even in rural territory. The movement has grown rapidly in Montreal and Toronto, and, with the growing improvement of transportation by road, is certain to be accelerated in the future. The results of the movement should make those who are interested in municipal progress ponder as to its future outcome. Does it mean that in some respect large cities are so lacking in foresight and so neglectful of their real interests as to be forcing the process of their own disintegration? While cities and towns have been following the suicidal process of letting growth take place without proper plan, and without adequate engineering advice and sufficient regard for public health in many cases, some of them have been attempting to attract manufacturers by means of bonuses and fixed assessments. These kinds of attractions, however, appeal only to the least important, and very often to the financially insecure, manufacturing interests. If cities and towns want to get and keep large industrial plants they will have to change their methods and take more interest in making their cities more convenient, attractive and interesting and their housing conditions more healthy and pleasant in their environment; and this can only be done to a satisfactory degree if more science and business judgment are applied to city building.

Town Planning Not a Fad

Those who have experienced the need for more scientific development of towns, and have seen evidence of the practical advantage of such development, have found, nevertheless, that it is difficult to convince the average man that the planning of towns and adequate control of building development and public health are not fads of well-meaning but impracticable enthusiasts. It is the result of the policies which have been pursued in the past, under the erroneous idea that has tended in large measure to drive out large manufacturers from existing cities, thereby depreciating property and lowering the financial stability of cities.

But this decentralizing movement is no longer confined to the removal of industrial plants from one municipal area to another. It has taken in recent years a much more interesting and formidable shape. Many large industrial concerns, in selecting new locations for their factories, are nowadays acquiring not only sufficient land to house their workers but sufficient to enable them to erect complete new towns, and they are, moreover, finding the capital and skill needed to build these towns.

Systems of laying out and managing cities under our municipal governments will, in the future, have to bear the test of comparison and competition with private enterprise applied to town-building, and it would seem as if private enterprise were going to score unless new methods are employed by the completely self-governed cities and towns. When a manufacturer has the financial means to acquire sufficient land to build a new town, when he is able to locate the town adjacent to his plant, to employ the best expert

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advice in laying out wide means of arterial communication and of economic and durable road construction, give plenty of light and air-space to the dwellings occupied by his workers, provide parks and institutes for recreation in convenient places, avoid disorderly and wasteful construction of temporary dwellings and dangerous tenements, and when he can obtain continuity of skilled management to the whole enterprise, he will be able to start it with many advantages in comparison with those who control the development of existing towns. With a proper system, public administration should give as good results as private administration, and at the same time safeguard us against any weakening of our self-governing institutions.

The Site of Ojibway

The town of Ojibway is one of a number of towns and suburbs which are being built in Canada as a result of the above movement. The Canadian Steel Corporation, an offshoot of the United States Steel Corporation, having decided to erect a large plant in Canada, did not go to an existing city to select a site. No doubt, if they had chosen to put themselves up to an offer from a city or town, they could have had not only free land but the utmost degree of immunity from taxation permited by law, as well as the benefit of existing public services, such as roads, sewers, water, etc. These things, however, do not appear to have attracted them. What they apparently desired was a site where, given existing facilities for transportation and for obtaining power, they could get cheap land, ample room for expansion, the environment they required for their workers, and the benefit of the economies to be effected by planning a town in advance. It may, therefore, be inferred that it is the want of these things in existing cities that is compelling manufacturers to do their own town building.

The site of Ojibway, selected by the Steel Corporation, is adjacent to the municipalities of Windsor, Sandwich, Walkerville and Ford. Sufficient land has been acquired by the corporation to provide for the accommodation of their employees and the many others who will want to live in the town for the purpose of supplying the social needs of the workers.

The plant has been prepared by Mr. Owen Brainard, consulting engineer of the architectural firm of Carrière and Hastings, New York. The area of the townsite which has been planned can accommodate a population of 20,000 inhabitants, under wholesome conditions. It is proposed to start the erection of 300 houses within the next year.

The Steel Corporation will provide the streets, sewers, and other improvements, which it is proposed, ultimately, to turn over to the town of Ojibway at cost.

The Question of Control

The corporation is not carrying out the plan of direct control over the construction operations in the town with the object of replacing self-government by bureaucratic government; it is merely carrying out, temporarily, the direct control for the purpose of expedition and as a safeguard against confusion. It is not intended that this relation of the corporation to the work shall be carried further than is absolutely necessary to enable it to secure that at least the central part of the town will be developed on the best principles known to modern science as applied to town building.

Plans of towns and subdivisions in Ontario have to be approved by the Railway and Municipal Board. Under the Ontario law relating to streets all streets must be 66 feet wide, unless the board consents to a narrower width, with a minimum of 50 feet. Most of the streets on the Ojibway



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plan are only 50 feet in width. Before approving the plan the board requested the opinion of the Town Planning Adviser of the Commission of Conservation as to whether the streets were of sufficient width and whether the omission of alleys in the residential blocks was not undesirable from a sanitary point of view.

This report shows how desirable it is to fix the width of streets under town planning schemes instead of according to a general and inelastic by-law.

Objection to Street Width

Those who have not understood the reason why objection is made to the 66-feet minimum width, which is required by the Ontario law, will find a good illustration of the reason in the report. The Canadian Steel Corporation could not afford, on a sound economic basis, to adopt a minimum of 66 feet for the width of its streets unless they cheapened the houses in order to pay for the excessive amount of street space and pavement, or, alternatively, unless they did without wider streets for main traffic routes. Under Mr. Brainard's scheme the majority of the working-class dwellings will be erected on streets of sufficient width for all possible traffic requirements, and additional air space will be obtained by setting back the buildings on the lots. As a result of the narrower width in the majority of residential streets, a large saving will be effected by having shorter sewer connections, water connections, and paving or boulevarding.

That saving will be a contribution towards better building. On the other hand, as the report shows, because the residential streets are narrower the designer has been able to include wide avenues (80 to 120 feet in width and the central parkways 300 feet in width), representing the giving to the town of a greater superficial area in streets that would have been the case if each of the streets had conformed to the Ontario law, which, in effect, causes all streets to be of one width, no matter how varied their purposes and duties may be.

The corporation proposes to plan the buildings in square form, so as to avoid the objectionable type of houses with three rooms deep, and the intention is to use slate, asbestos or metal roofs on all buildings, and walls of brick or terra cotta blocks with stucco or brick veneer.

The information in this article with regard to Ojibway is not to be taken as representing any definite programme of the Canadian Steel Corporation. The corporation has selected its site and has had the plan prepared for its development, but its general policy and programme are still undetermined, and the plan itself may be subject to modification as development proceeds.

Public and Private Standards in Town Buildings

Unfortunately, it has to be admitted that the standards of town development, in regard to planning, sanitation and building construction, which, so far, have been attainable under our combined municipal and public health administrations, are not equal to those of some private bodies, such as the Steel Corporation. As already stated, it is partly because of the defects of public standards that the Steel Corporation has had to create new standards of its own both in the United States and Canada. Have we to continue to admit that our self-governed communities cannot obtain as good results for the governed by proper town planning and regulation of land development and building construction as can be obtained by private corporations with limited statutory powers and without any direct responsibility to the public? Is our municipal control of land development so defective that, in spite of having public services, local

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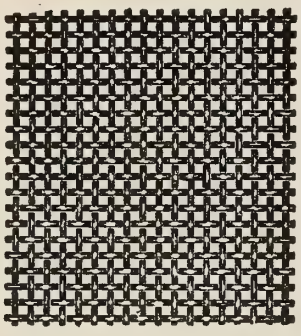
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improvements, houses, and every business facility already existing and concentrated in a small area, we cannot offer the large corporation as good advantages as it can obtain outside of the city, even when to obtain them it has to incur the great cost of providing these services and facilities out of its own capital?

Need of Comprehensive Plan

These questions need the consideration of our provincial governments and municipalities, if we are to conserve the values of municipal resources which have been built up at the cost of the citizens. Our great cities need the comprehensive plan, not because it is theoretically the proper thing to do to enable future development to proceed on healthy and economic lines, but as a means of self preservation. There is a group of able thinkers who see in this process of industrial decentralization a national boon to be obtained at the price of the break-up of huge cities—which in their present congested state are regarded as a calamity. If great cities, however, are properly planned and directed in their growth they need not have congestion; and, while it is desirable that they should be spread out over wider areas, and that the penetration of rural districts by industrial plants should continue it is even more desirable that the twin process of relieving the congested areas and building new towns and suburbs outside the cities should be properly planned and organized. Only by this means shall we be able to conserve our community resources simultaneously with promoting sound development in the future.

Streets, buildings, and means of transportation need to be considered in relation to one another instead of as things apart. The direct cost of sky-scrapers is infinitesimal compared to the indirect cost which, in the aggregate, they entail on the communities which suffer from the congestion they create. The traffic congestion of New York is being relieved in the present year by the construction of underground railways at enormous cost to carry three billion passengers a year, but the president of the railway company says that this is the merest stop-gap and that "the traffic congestion in 1928 will be greater than in 1918." The migration of industries to country districts is going to afford more relief to that problems than seems to be dreamed of, but, as this migration proceeds, it will take away from the cities one of the chief sources of revenue on which they rely to pay interest on their huge expenditures on remedial measures.

Need Sound Business Principles

The least that can be said on the subject is that it is more than time to deal with the intricate problem of city development on sound business principles. Above all, cities and towns have a right to ask provincial governments to give skilled leadership and guidance in municipal matters and in connection with the control of land development where hitherto there has been merely bureaucratic interference with the petty affairs of local government, and not a little encouragement instead of discouragement to the evils of land speculation.

What is happening at Ojibway is an illustration of the need for a skilled Department of Municipal Affairs in Ontario. While Ojibway is being planned, the adjacent municipal areas are growing up without plan. They not only appear to be indifferent to the fact that one of the reasons for the Steel Corporation not selecting a site in one of their areas may be put down to the fact that municipal development under present haphazard conditions is so expensive and wasteful that it is cheaper and better for a

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private corporation to meet the great cost of building its own town, but they appear unwilling to benefit from the lesson this conveys. If that lesson had been learned we should now have in preparation a comprehensive plan for the five border municipalities adjacent to Ojibway under the guidance of the Provincial Government and aided by statutory powers conferred on the municipalities by a proper Town Planning Act.

Outside the Model Town

What are the facts? While the private corporation at Ojibway is planning to build a model community, nothing is being done to protect the borders of the corporation estate from the encroachment of the worst forms of slum property. Considerable areas all round Ojibway have been laid out in small lots and thrown open to speculation. Many of these subdivisions are placed where there is no water supply available and where no sewers can be provided at reasonable cost. As has happened in the case of other model towns built under the direction of the corporation, e.g., at Gary, Indiana, the work of the corporation will be largely vitiated by the erection of insanitary shacks around its outer fringes. Thus the character of the development permitted under public control is not only bad in itself, in such cases, but destroys much of the value of what is achieved by private enterprise. There is still time to prevent this destruction, if the matter is taken in hand by the Provincial Government and the municipalities, by the passing of town planning legislation and the preparation of a comprehensive scheme for an area which will one day be the site of a great Canadian city.

Alcohol from Wood Waste

Canada Will Begin to Practice Recovery in the Near Future

By DR. J. S. BATES

Waste sulphite liquor is one of the most frequently quoted industrial wastes, as millions of gallons are turned into the rivers every day, carrying half the original pulpwood substance together with most of the lime and sulphur used. Recovery of by-products is difficult and costly, but it is safe to say that Canada will begin to practice recovery in the near future. In Europe and the United States evaporated liquor is used quite extensively as a binder for briquetting fuel and as core binder in foundry work. The tannin-like substances are separated and incorporated with true tannins in preparing sole leather. Sweden has taken the lead in recovery of ethyl (grain) alcohol, and produced in 1916 over 500,000 Imperial gallons of 95 per cent. alcohol for industrial purposes, motor fuel and potable spirits. It is reported that Germany has established this process in fourteen sulphite plants in order to conserve potatoes, which are the usual source of alcohol in that country.

Waste sulphite liquor contains about 1.5 per cent. of fermentable sugars which are produced from the wood during the cooking process, and these sugars are fermented to alcohol by yeast. The direct recovery of sugars and other organic matter makes available a fairly good cattle food. Recent processes aim at the precipitation of the lignin content for use as fuel, and a number of new plants are going up in Norway. Minor processes are the recovery of destructive distillation products, fertilizer and mordants for dyeing. There is also the possibility of recovering sulphur compounds which, however, do not originate in the wood.

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PNEUMATIC TOOLS AND THE NERVES

In the following article the writer recommends that some method be attempted to warm the chisel during very cold weather, that the shank be enlarged or covered to prevent cramp in the hand muscles and that the habit of blocking the exhaust be discontinued

By FRANCIS M. BARNES, M.D.
(From "Safety Engineering")

It is particularly in reference to the stone industry that these remarks will apply, and, more especially in so far as the pneumatic hammer is employed in the fabrication of limestone.

Within the past two years complaints of ill effects from the use of the hammer have become prevalent in the Indiana belt. It has been claimed that the use of the hammer produced in the men a diseased condition affecting the nervous system and leading even to paralysis, insanity or other form of complete incapacitation.

In view of the fact that in current medical literature no mention of such diseased condition from this causation could be found, it became necessary to carry out an investigation to determine, if possible, whether such disease actually did exist, its extent and seriousness, and, if necessary, to study measures whereby its occurrence could be minimized or entirely done away with.

"White Fingers"

To this end a number of limestone operators in the Bedford district formed the Bedford Stone Club Auxiliary, and it was upon the invitation of this organization that the writer had an opportunity, in December, 1917, of studying conditions which, it was claimed, affected workmen using pneumatic hammers. This investigation was directed primarily toward a study of the nervous system, although at the same time a complete general examination was made of a number of selected workmen. Recently investigations have been carried out in other parts of the country where the pneumatic hammer is used in ship building, in the steel industry and in granite cutting.

So far as this study is concerned the men using pneumatic hammers on limestone were found to be in very good general health and none of the group examined showed any constitutional disease; their troubles (supposedly arising from the use of the hammer), being limited to a disturbance of the function of the left hand—commonly known as "white fingers" or "dead fingers." As a general thing this condition occurs shortly after the men first go to work in the morning, or until they have "warmed up," although it also occurs during cold weather when the hands are exposed otherwise than in working.

First the little finger and ulnar side of the left hand (in right-handed men) become pale and blanched; the same area soon giving rise to tingling or numbing sensations, sometimes even to slight pain. The ring finger and part of the middle finder may also be involved in this process. By swinging the arms or rubbing the hands the condition may be made to disappear and when the hands are warmed the pallor rapidly gives place to diffuse flushing and reddening. The index finger and thumb of the right hand are occasionally affected, particularly in those workers who improperly control the exhaust by their finger or thumb.

So far as could be determined this condition of the hands constitutes the sole trouble from which the stone workers complain in so far as the pneumatic hammer is concerned.

The disorders of the extremities indicate very clearly that a disturbance of the peripheral circulation of the blood

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is responsible for their occurrence. The calibre of the peripheral blood vessels, and therefore the amount of blood supplied to the part, is dependent in large measure upon the action of the nerves which supply these blood vessels, known as vaso-motor nerves. Low temperature stimulates the sensory nerve fibers in the skin and the nerve impulses thus aroused reflexly stimulate the vaso constrictor centre, or a part of it, and cause blanching of the skin. That cold may produce evident changes in the appearance of certain parts of the body, notably of the extremities—the feet, hands, ears and nose—is a matter of common observation.

With the stone cutter, whether using a chisel and mallet or a pneumatic hammer, the factors of cold, continued muscle contraction and cutaneous irritation are all present to a considerable degree and demand due evaluation in the consideration of such disorders in the hands as are sometimes observed. The fact, borne out with uniformity in this investigation, that the trouble occurs only in cold weather, indicates most conclusively that the low temperature itself is one of the most important factors in the causation.

There are certain well-organized diseases which may bear a superficial resemblance to the disorders which sometimes occur in the hands of stone cutters. However, upon close study, it is found that this resemblance is but superficial and that the condition observed in the hands of some stone cutters is not one corresponding to any known disease.

The uniformity of the results of the examinations made in this investigation, taken together with the testimony of the workmen and of others, reasonably justifies the following deductions:

(1) Stone cutters working in limestone, as a class, enjoy good general health and are not, because of their trade, especially susceptible to any particular disease.

(2) Stone cutters are liable to a disorder affecting the hands, especially the left hand.

(3) This disorder of the hands is of a vascular character, not due to organic changes in the circulatory system, but dependent upon vasomotor reactions.

(4) These reactions are physiological in character and are occasioned by three factors incidental to the work of stone cutting: (*a*) Mechanical irritation of the skin, (*b*) continued muscular contraction of a cramping nature and (*c*) low temperature, cold.

(5) Of these three factors, cold is considered the most important because: (*a*) the condition only occurs during the very cold weather and never in the summer, (*b*) warmth and measures to restore the circulation (rubbing, swinging the arms and the like) cause its disappearance.

(6) It cannot be caused by the effect of the air hammer alone because (*a*) it occurs in those who have not used the air hammer, (*b*) it does not occur in warm weather when the stone cutting industry is at its height and, therefore, when the air hammer is most in use; (*c*) it occurs mostly in the left hand and not in the right hand in which the hammer is held.

(7) The vasomotor disorder is of temporary duration and is not known to have resulted in permanent disability of the hand, nor itself to have been the cause of development of any other local or constitutional disease.

(8) It is possible that once having occurred the person is rendered more susceptible to its appearance, just as the one who had had his ears or fingers frostbitten or "nipped" by the cold is more susceptible in these parts to the subsequent exposure to cold. This explains the occurrence of "white fingers" in stone cutters when not actually engaged at cutting but otherwise exposed to low temperatures.

(9) There is no sufficient reason in the signs and symptoms presented in this disorder to conclude that one has to do with Raynaud's disease, acroparesthesia, neuritis or an occupational neurosis.

(10) The institution of measures to warm the chisel before and while using, enlarging the shank of the chisel and covering it to make it possible to hold without so cramping a grip, the wearing of gloves, and the discontinuance of the prevalent custom of blocking the exhaust outlet, and thus forcing a draft of chilled air out along the chisel and onto the fingers of the left hand would do much toward the prevention of this trouble.

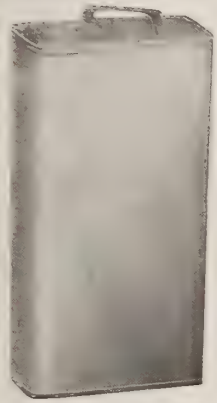
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A SWISS NATIONAL TRADE-MARK

The fear has frequently been expressed in allied countries that after the war Germany might use Switzerland as a "jumping-off" place for dumping her manufactures in allied countries; the Swiss are alive to the danger

By PIERCE C. WILLIAMS
(From U. S. Commerce Reports)

To forestall competition, after the war, of foreign-made goods fraudulently described as of Swiss origin—Swiss exporters have recently adopted a national trade-mark. This trade name is "Spes," a word coined by taking the initial letters of "Syndicat pour l'Exportation Suisse," the name of the voluntary co-operative association to which the trade name belongs.

The Syndicat grants the use of the name "Spes" only for "products of the Swiss soil, or of the Swiss mining industry, or for merchandise having undergone in Switzerland a manufacturing process, such as to change their character."

Must Become a Member

To obtain the right to use the name "Spes" on his goods, the manufacturer or the exporter must become a member of the Syndicat pour l'Exportation Suisse. To become a member of the Syndicat the person desiring the protection of the trade name "Spes" must prove the genuine Swiss character of his product. It is not enough for the goods to have been produced or to have undergone manufacture on Swiss soil. In addition, the manufacturer or the producer, if an individual, must have been of Swiss nationality before July 1, 1914, or to have been nationalized for at least ten years. In the case of stock companies, the president and two-thirds of the board of directors must be of Swiss origin or of Swiss citizenship, and at least two-thirds of the capital stock must be Swiss.

All of these facts must be set forth on the application for membership in the Syndicat, and the claims of the applicant are carefully investigated by the directors of the Syndicat before membership is granted.

Membership in the Syndicat does not, *ipso facto*, confer upon the member the right to use the mark "Spes." If he desires to make use of it he must make a special application and sign a special engagement. The use of the mark "Spes" is then only authorized for such articles as have been agreed upon between the member and the Syndicat. The annual fee for the right to use the mark "Spes" is based upon the total exportation of the given product during the preceding year. The use of the national mark "Spes" does not prohibit the member from using his own private trade-mark, if he has one.

The use of the mark "Spes" on products of notably inferior quality, the sale of which would tend to injure the reputation of the mark "Spes," is prohibited.

Any abuse of the mark or its use by unauthorized persons is supervised by the committee of the Syndicat, which is empowered to take appropriate steps to punish such acts.

Need of Protecting Swiss Goods

The need of protecting genuine Swiss products, competing with goods falsely described as of Swiss origin, was clearly recognized by Swiss exporters long before the war. Switzerland has suffered particularly from the fact that names of localities no longer guarantee that articles bearing the name were produced there. To illustrate, it is a well-known fact



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that eau de Cologne no longer comes exclusively from the Rhine city; that all Russian leather does not originate in Moscow; that Prussian blue does not come solely from Berlin, and so on.

In the case of Swiss products the names of Geneva for watches, of Basel for silk ribbons, and of St. Gall for embroideries, are frequently found upon articles manufactured elsewhere. The names "Gruyère" and "Emmenthal" are now used to designate cheese made in many different parts of the world.

The importance to Switzerland of being able to guarantee the genuineness of goods claimed to be of Swiss origin has been even more imperiously forced upon Switzerland during the war.

As stated by the committee of the Swiss Chambers of Commerce in the report which resulted in the foundation of the Syndicat pour l'Exportation Suisse and the adoption of the mark "Spes":

Switzerland is very hospitable. She receives the exiled and disillusioned people from all countries and opens her arms to them. We, Swiss, are proud to inhabit a country where the stranger, no matter whence he comes, no matter what may be his opinions, his race, or his religion, feels at ease. None of us would think of attempting to curtail in any degree this right of asylum.

But this hospitality has serious inconveniences just now. It creates doubts in belligerent countries as to the real nationality of houses doing business in Switzerland. Citizens of certain belligerent states fear that in making their purchases in our country they may be favoring indirectly trade with the enemy, and rather than run this risk they prefer to abstain from any business whatever with us.

It is idle to point out here how violent the feeling is between the peoples of the belligerent countries. What this feeling will be after the war no one can tell. Probably time will eventually accomplish its work of reconciliation; existing animosities will perhaps gradually be calmed. But it is to be feared that for a generation at least many persons—all those, for example, who have been ruined by the war, all those who have lost some one on the field of battle—will not be able to forget and will retain a natural rancor. In the commercial field we now see France and England boycotting enemy products. On the other hand we see Germany boycotting Paris novelties and deciding to create her own styles so as to be free of the domination of Paris.

Must Avoid Suspicion

Swiss industry must not suffer from this state of things and, placed between the hammer and the anvil, become the object of distrust on both sides. For example, the fact that our countrymen of the north and east carry on their business in a region where the German tongue is used renders them suspect in the eyes of the French. On the other hand, we know that German buyers have returned letters unanswered to exporters in French Switzerland because these letters were written in French. On both sides the fear of doing business with firms not really of Swiss nationality places us in a position of inferiority in comparison with other neutral states where this danger does not exist.

We read frequently in German economic publications articles dealing with the question of German exports after the war and pointing out the difficulties which will confront German goods as a result of the boycott against them. They generally conclude that the solution of the problem must be found, in the case of many articles, in finishing them on neutral territory. In one of these articles it was even added that the Handelsvertragsverein (Association for the Promotion of Commercial Treaties) is prepared to furnish German manufacturers with suggestions in this respect.

These facts are bound to have a disastrous effect on the neutral countries which provide a shelter for such manœuvers and are likely to cast discredit upon genuine Swiss houses.

The remedy for this state of things is a mark which will guarantee the authentic origin of products, a mark which will not prevent the use of other emblems or labels, and which will not be forced upon anyone, but which, on the

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other hand, will not be permitted to be used except by establishments of genuine Swiss nationality.

The fear has frequently been expressed in allied countries that after the war Germany might use Switzerland as a "jumping-off" place for dumping her manufactures in allied countries. The foregoing, however, shows that the Swiss manufacturers and exporters are keenly alive to this danger, and are determined to prevent it.

Obviously, it would not be to the interest of Switzerland if embroideries manufactured in Plauen, Saxony, should be shipped to the United States by way of Switzerland, pausing in that country only long enough to have the cases marked "St. Gallen embroideries." Nor would it be to the interest of Switzerland to permit electrical machines made by the A. E. G., of Berlin, to receive a few fininshing touches in Switzerland so as to be stamped "Made in Switzerland."

The "Syndicat pour l'Exportation Suisse" realizes the vital necessity for providing some means by which buyers in all parts of the world may be enabled to demand and receive a genuine Swiss article instead of a spurious one of German origin. It will assist materially if buyers in the United States and other parts of the world will require either that the mark "Spes" appear on goods they order in Switzerland or that their suppliers in Switzerland prove that they have the right to use the mark.

The Need for an Ideal

(From the "London Morning Post.")

We desire to put to our politicians a simple question which perhaps they have never yet put to themselves. Upon its answer—simple as it is—depends the future of the nation. Why did a soldier work until he dropped for a shilling or so a day? A workman would not do it: then why did the soldier? Was it compulsion? No, the zest and zeal with which our soldiers fought and died could not be the result of compulsion. Was it discipline? Not altogether. What was it then? Our soldiers worked and fought and died not for their poor pittance in wages, nor because they were compelled thereto, but because they fought for an ideal. And what was this ideal? May we not say that it was patriotism, love of their country and their country's cause? That was the secret of their heroic devotion: that is the simple answer to our simple question. But if our people will fight and die thus cheerfully for an ideal might they not also live and work for an ideal? And if Mr. Lloyd George means to appeal to the country might it not be worth his while to consider whether this ideal, for which such multitudes have died, might not also unite a great multitude in work and life?

There is, of course, an obvious plan: it is open to the politician not to offer an ideal but a bribe. In the war the politician depended on both these methods. To the soldier he said: Fight and, if need be, die for an ideal. And he did it. To the munition worker he said: Work for wages twice as high as you ever had before. Did the worker work any better than the soldier fought? Would the worker have worked as well if the politician had said to him: Your country is in danger; every penny must be saved if we are to win through to honor and safety. Work, therefore, at a soldier's wages and a soldier's hours for this ideal of saving your country. It might possibly have succeeded as well with the workers as it did with the soldiers—and we verily believe that the good work done by the workers was not done for the bribe: it was done for the ideal—which they cherished also. These thoughts occurred to us as we read the speech by Mr. Lloyd George to his supporting Liberals. From that speech we gather what is to be promised to the British people: (1) a League of Nations to produce eternal peace; (2) a great housing pro-

Canadian National Railways

OFFICE OF THE PRESIDENT

TORONTO, January 1st, 1919

Effective January 1st, 1919, the railways heretofore known as the following:

Canadian Northern Railway System
Eastern and Western Lines

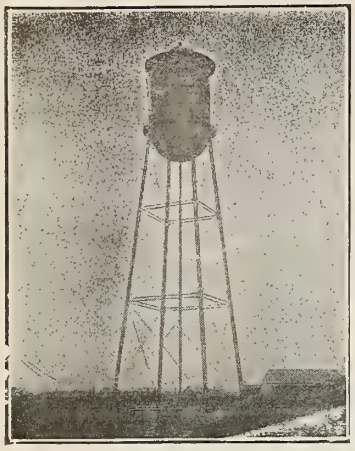
Canadian Government Railways
National Transcontinental Railway
Intercolonial Railway of Canada
Prince Edward Island Railway

will be operated under the name of the Canadian National Railways, the headquarters of which will be in Toronto, Canada.

In operating and corresponding officers of any of the above mentioned railways will in future use the name "Canadian National Railways."

We shall be obliged therefore if in future the public and our connections will address their communications and reports to the proper officers of the Canadian National Railways.

D. B. HANNA,
President.



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gramme; (3) a minimum wage; (4) shorter hours of labor; (5) a land programme. Here indeed we have a full coster's barrow—a pre-war election platform of the most prodigal kind. It will no doubt catch a great many votes; but we doubt if it will inspire the nation to that effort and that sacrifice, to that foresight, that economy, that self-denial, that hard work, which are required if we are to pull our country through those terrible times which lie ahead.

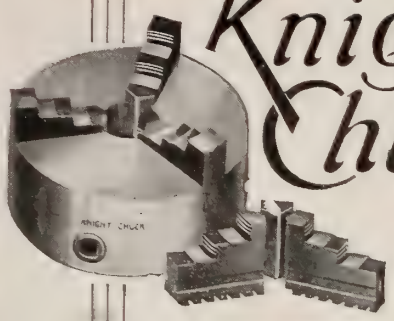
And now we come to the arrangement between the two parties, of which our Political Correspondent gave a summary yesterday. It is indeed a judgment of Solomon: every baby of both Central Offices is cut in two with results which should be equally pleasing to both mothers. There is to be Imperial Preference, but no Food Taxes; there is to be Prevention of Dumping and Protection of Key Industries, but no "economic war"; there is to be Home Rule, but no coercion of Ulster; there is to be Welsh Disestablishment, but a readjustment of the financial clauses. Thus everybody is pleased—and nobody. We confess we cannot be enthusiastic over such promises and such arrangements. We believe Mr. Lloyd George might be a national statesman—he has some at least of the qualities; but we do not detect here the inspiration of any great national principle, the "uplift," as the Americans call it, of any national ideal, such as the ideal for which our soldiers fought.

Tell the People the Truth

We suggest to Mr. Lloyd George that it might be better if he threw this coster's barrow with its pre-war cabbages into the gutter and took his stand upon a simpler and nobler creed. He might, for example, tell the British people the plain, unvarnished truth. "You are," he might say, "brought to the verge of ruin by this costly and disastrous war, out of which you have barely escaped with your lives—thanks not to any League of Nations but to your Navy and your Army. Every asset is pledged, every credit strained. Most of your industries are no longer upon an economic basis. You are near the harbor of peace, it is true, but every timber has started in the tempest of war. And we must have all hands to the pumps to prevent her sinking in harbor. Only hard work, co-operation, and self-sacrifice from every class will save you at all. We are deep in debt, and as honest men we must pinch and scrape to pay our creditors. Only when we are free of debt shall we regain our independence as a nation. But we have great assets. We have our industries, which are our neglected treasures. We must cherish and protect them where protection is necessary. For only by increasing our production shall we meet our liabilities and employ our labor.

There is no royal road to fortune. If I were to deceive you in this I should not deserve to be trusted. We have also our British Dominions. They have vast undeveloped wealth, and they have invited us over and over again to co-operate with them in developing it. By such means also we may employ our people and pay our debts. But you must give us a free hand with the economic policy necessary to give Security to our industries and Reciprocity to our Dominions. If we find it necessary to tax food we shall tax food; if a tariff is found to be desirable we shall impose a tariff. We ask you to remember this—that the security of the nation depends on its industries and its solvency on the increase of production. I offer you nothing but fidelity to your interests; I can promise you nothing—not even our daily bread, for I cannot command it—but my service, my enthusiasm, my eloquence, my courage, as your chosen leader in the great fight we must now fight for our existence in the world." If Mr. Lloyd George would take such a line as that—and we believe it appeals to his higher nature—he might do better in the end. For he would be appealing to that great ideal of patriotism which, as the war shows, is stronger even than life.

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So do plant owners and machinists everywhere in Canada.

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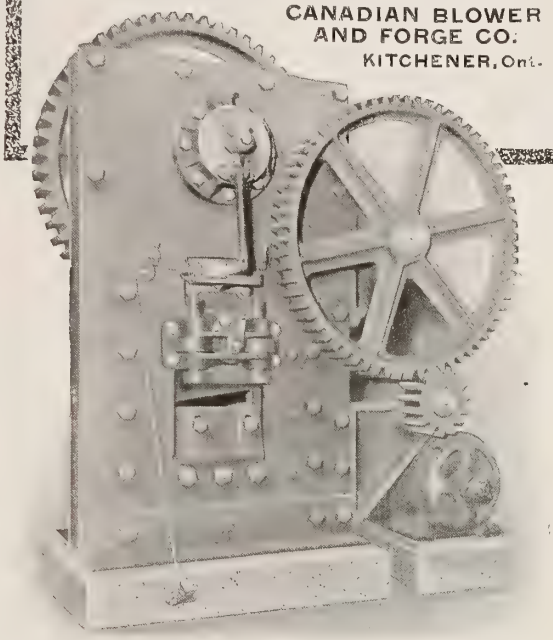
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T H-E

Prosperity in 1919

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Let us add a word of advice: if you have no resident electrical engineer, call in your electrical contractor NOW and have him go over your electrical equipment---motors, transformers, switches, lighting arrangements, etc., and make sure everything is right and ready for the big business just ahead.

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List of Articles which will Enable the Purchaser to Know the Manufacturers of Made-in-Canada Goods. For Rates of Insertion in this Department write to the Advertising Manager of INDUSTRIAL CANADA, C.M.A., Toronto, Ont.

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*The John Whitfield Company, Toronto, Ont.
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*Canadian Hart Wheels, Ltd., Hamilton, Ont.
*Dominion Abrasive Wheel Co., New Toronto, Ont.
ACCOUNT BOOKS
*The Brown Bros., Ltd., Toronto.
ACETYLENE GAS
*The Prest-O-Lite Company.
ACETYLENE GAS BURNERS
Economic Acetylene Burner Co., Toronto.
*The Prest-O-Lite Company.
ACIDS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal.
ADVERTISING NOVELTIES
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Charles Gurd & Co., Ltd., Montreal, Que.
J. J. McLaughlin, Ltd., Toronto.
AIR COMPRESSORS
*Canadian Ingersoll-Rand Co., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ALCOHOL
*Hiram Walker & Sons, Limited, Walkerville, Ont.
*H. Corby Distillery Co., Limited, Montreal.
ALUMINUM
*Northern Aluminum Co., Ltd., 1805 Traders Bank, Toronto.
ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
AMMONIA
Canadian Ammonia Co., Ltd., Toronto.
ANGLE BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.
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*Crouse-Hinds Co., Ltd., Toronto.
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*Autographic Register Co., Ltd., Montreal.
AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.
AUTOMATIC SCREW MACHINE PRODUCTS
*United Brass & Lead, Ltd., Toronto
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*Tallman Brass & Metal Co., Hamilton, Ont.

AUTOMOBILE PARTS
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*McKinnon Industries Limited, St. Catharines, Ont.
*United Brass & Lead, Ltd., Toronto
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Hamilton Cotton Co., Hamilton, Ont.
AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
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Alonzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.
BAGS
*Scythes & Co., Ltd., Toronto.
BAGS, Cotton
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BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
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*Berry Bros., Ltd., Winnipeg, Man.
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*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
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*E. C. Atkins & Co., Inc., Hamilton, Ont.
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*Dennis Wire & Iron Works Co., London.
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
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*Tallman Brass & Metal Co., Hamilton, Ont.
BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
BARS, iron
London Rolling Mill Co., Limited, London, Ont.
BARS, steel
London Rolling Mill Co., Limited, London, Ont.
BASEBALL GOODS
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BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.
BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
BATTERIES, Flashlight
The Canadian National Carbon Co., Ltd., Toronto.

BATTERIES, Storage
The Canadian National Carbon Co., Ltd., Toronto.
BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
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*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BEARINGS, pillow block and upright
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.
BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.
BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.
BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.
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*Dominion Belting Co., Ltd., Hamilton.
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BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.
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BLOWERS
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BOILER PRESERVATIVES
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*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
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Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
BOILERS, steam.
*Jenckes Machine Co., Sherbrooke Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
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*The National Acme Mfg Co., Montreal., Que.
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The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
BOXES, wooden
G. & J. Esplen, Montreal, Que.
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BOXBOARDS, for making paper boxes
*Canada Boxboard Co., Limited, Montreal, Que.
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The Moulton Mfg. Co., Limited, Montreal.

*For Display Advertisement see Index, Pages 317-318

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*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRAKE SHOE BACKS
*The John Whitfield Company, Toronto, Ont.
BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
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*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
BRASS, BRONZE and ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
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*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
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*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead Ltd., Toronto.
*Wentworth Mfg. Co., Hamilton.
BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton Ont.
BRASS RODS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRASS SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont.
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Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*United Brass & Lead, Ltd., Toronto
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National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.
BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.
BRIDGES, Railway and Highway
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRONZE SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRONZE TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.
BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.
BUCKET TANKS
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
BUCKLES, harness and trunk
*McKinnon Industries Limited, St. Catharines, Ont.
BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St. Johns, Que.
Toronto.
BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Barrett Co., Ltd., Toronto and Montreal.
BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal. Que.
CABLE ACCESSORIES
*Crouse-Hinds Co., Ltd., Toronto.
CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.
CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.
CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.
CALENDARS, ADVERTISING NOVELTIES, etc.
Lawson & Jones, Limited, London, Ont.
CAMERAS
Canadian Kodak Co., Limited, Toronto.
CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.
CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.
CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.
CANVAS
*Scythes & Co., Ltd., Toronto.
CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.
CAPS FOR HUBS
*McKinnon Industries Limited, St. Catharines, Ont.
CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.
CARBONS, Electric
Canadian National Carbon Co., Ltd., Toronto.
CARBONS (headlight)
*Crouse-Hinds Co., Ltd., Toronto.
CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.
CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited.
CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.
CARRIAGE CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.
CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.
CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier
CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.
CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.
CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
CARTONS, lithographed
Harris Lithographing Company, Limited, Toronto.
CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
*Tallman Brass & Metal Co., Hamilton, Ont.
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, grey iron
*Canadian Rumely Co., Limited, Toronto, Ont.
*Crouse-Hinds Co., Ltd., Toronto.
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.
CASTINGS, malleable iron
*Crouse-Hinds Co., Ltd., Toronto.
*Galt Malleable Iron Co., Ltd., Galt, Ont.
CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.
*Wm. Kennedy & Sons, Ltd., Owen Sound.
CATALOGUE MAKERS
Grip, Ltd., Toronto.
CATALOGUE COVERS, by new lithographing process
Harris Lithographing Company, Limited, Toronto.
CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor,
CELLBOARD
Adams Cellboard Co., Toronto,
CEMENT GUNS
Steel and Radiation, Ltd., Toronto.
CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.
CENTRIFUGAL PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.
CHAINS, sling
*The John Whitfield Company, Toronto, Ont.
CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.
CHAIRS FOR AUTOMOBILES, camp, boat
*McKinnon Industries Limited, St. Catharines, Ont.
CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.
CHECKS, swing checks, etc
*Mueller Mfg. Co., Ltd., Sarnia.
CHEMICALS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.
CHEMISTS, INDUSTRIAL
*Milton Hersey Co., Montreal.
CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.
CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.
CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland. Ont.
CLOCKS, TIME
*International Business Machines, Limited, Toronto.
CLOCKS, WATCHMEN'S
*The Bennett & Wright Co., Ltd., Toronto, Ont.
CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.
CLOTHING
John W. Peck & Co., Ltd., Montreal, Que.
CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.
CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.
CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.
CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.
CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.
COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

For Display Advertisement see Index, Pages 317-318

COBALT OXIDE
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.

COFFEE
S. H. Ewing & Sons, Montreal Que.

COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited Hamilton, Ont.

COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto

COLLAR BUTTONS
The Arlington Co. of Canada, Ltd. Toronto.

COLLARS
The Standard Shirt Co., Limited Montreal, Que.

COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.

COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

COLORS
Brandram-Henderson, Limited Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd. Toronto.

COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.

CONCRETE COATINGS, PAINTS, ETC.
*Beveridge Paper Co., Ltd., Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.

CONDUITS FOR INTERIOR WIRING
*Conduits Company, Ltd., Toronto.

CONDULET BOX FITTINGS
*Crouse-Hinds Co., Ltd., Toronto.

CONDULETS (Marine)
*Crouse-Hinds Co., Ltd., Toronto.

CONFECTIONERY
Ganong Bros., Ltd., St. Stephens N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal

CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.

CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland
*Canadian Allis-Chalmers, Limited. Toronto.

CONVEYORS
*Canadian Link-Belt Co., Toronto
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.

COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

COPPER, SHEETS, PLATES, BARS, RODS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.

COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

COPPER TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.

COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

CORKS
S. H. Ewing & Sons, Montreal, Que.

CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.

CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
Corrugated Paper Box Co., Ltd., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.

CORUNDUM, artificial
*D. A. Brebner, Ltd., Toronto.

CORSETS
Dominion Corset Co., Quebec, Que.

COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.

COTTONADES
Hamilton Cotton Co., Hamilton. Ont.

COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.

COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

CRANES
*Northern Crane Works, Walkerville, Ont.

CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.
*The John Whitfield Company, Toronto, Ont.

CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.

CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.

CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

CREOSOTED MATERIALS
*The Barrett Co., Ltd., Toronto and Montreal.

CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.

CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.

CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

CUPS, presentation
Standard Silver Co., Toronto.

CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.

CURLED HAIR
*Delany and Pettit, Ltd., Toronto.

CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.

CUTLERY
Standard Silver Co., Toronto.

CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.

DASHES, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.

DECALCOMANIA TRANSFERS
Canada Decalcomania Co., Limited, Toronto.

DECK PLUGS (electric marine)
*Crouse-Hinds Co., Ltd., Toronto.

DENIMS
Hamilton Cotton Co., Hamilton.

DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

DESIGNERS
Ontario Engraving Co., Hamilton, Ont.

DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.

DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

DESSICATED VEGETABLES
Grahams Limited, Belleville.

DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.

DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
*John Whitfield Co., Toronto.

DISINFECTING APPARATUS
Spramotor Co., London, Ont

DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.

DOUBLETREES
*McKinnon Industries Limited, St. Catharines, Ont.

DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.

DRESSING, belt.
Sadler & Haworth, Montreal, Que.

DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.

DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

DRILL PRESSES
*Canada Machinery Corporation, Limited, Galt, Ont.

DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.

DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.

DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.

DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.

DROP HAMMERS
*Canada Machinery Corporation, Limited, Galt, Ont.

DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.

DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.

DYNAMITE
Canadian Explosives, Limited, Montreal, Que.

DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.

DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.

EIDERDOWN
Galt Knitting Co., Ltd., Galt.

ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.

ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.

ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.

ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.

ELECTRIC LAMPS
Packard Electric Co., Ltd., Toronto.

ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.

ELECTRIC BRANDING TOOLS
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.

ELECTRIC RAILWAY EQUIPMENT
*Crouse-Hinds Co., Ltd., Toronto.

ELECTRODES, Carbon
Canadian National Carbon Co., Ltd., Toronto.

ELECTROPLATING
*United Brass & Lead, Ltd., Toronto
Central Press Agency, Toronto.

ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.

ELECTRIC SOLDERING IRON
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.

ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.

ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.

ELEVATORS
*Jenckes Machine Co., Sherbrooke.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.

ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
*The A. B. Ormsby Co., Limited, Toronto.

ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.

ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.

ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.

ENGINES, gas and gasoline
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.

ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.

ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.

ENGINES, Marine, Gasoline and Kerosine
Bruce, Stewart & Co., Ltd., Charlottetown, P.E.I.

ENGINES, oil, gasoline and kerosene
*Golson Manufacturing Co., Ltd., Guelph.

ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited. Hamilton, Ont.

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ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.

ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.

ENGRAVERS
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton.

ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.

ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa.

ENGRAVING
*J L. Jones Engraving Company, Toronto.

ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa Limited, Ottawa, Ont.

ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.

EVAPORATED APPLES
Grahams Limited, Belleville.

ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.

EVENERS, for 2, 3, 4, 6 and 8 horses
*McKinnon Industries Limited, St. Catharines, Ont.

EXCELSIOR
*Delany & Pettit, Ltd., Toronto.

EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.

EXPLOSIVES, high
Canadian Explosives Ltd., Montreal.

FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.

FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.

FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

FASTENERS, belt
*Sadler & Haworth, Montreal, Que.

FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q
*Beveridge Paper Co., Limited Montreal.

FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works Hamilton, Ont.

FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.

FENCING, wire
C. H. Johnson & Sons, Limited, Montreal, Que.

FENDERS, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.

FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull, Que.

FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.

FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope.

FILING CABINETS
*Office Specialty Co., Newmarket.

FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.

FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.

FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.

FIRE BRICK
Dominion Fire Brick and Clay Products, Ltd., Moose Jaw

FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.

FIRE BRICK AND CLAY
The Dominion Fire Brick and Clay Products, Ltd., Moose Jaw, Sask.

FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.

FIRECLAY
*Jas. W. Foley & Co., St. John, N.B.

FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.

FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.

FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.

FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.

FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited, Brantford, Ont.

FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.

FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Bennett & Wright Co., Ltd., Toronto, Ont.

FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que

FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.

FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.

FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.

FITTINGS, steam
Warden King, Ltd., Montreal, Que.

FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.

FLAGS
*Scythes & Co., Limited, Toronto.

FLANGES, for wheels
*McKinnon Industries' Limited, St. Catharines, Ont.

FLEXIBLE COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

FLOODLIGHTS (electric)
*Crouse-Hinds Co., Ltd., Toronto.

FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont

FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.

FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.

FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.

FORGINGS
Canada Forge Co., Ltd., Welland.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
*The John Whitfield Company, Toronto, Ont.

FORGINGS, drop
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.

FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.

FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.

FOUNTAINS, drinking
*Mueller Mfg. Co., Ltd., Sarnia.

FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.

FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

FUEL
Standard Fuel Co., Toronto.

FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.

FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.

FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.

FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.

FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.

FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.

FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.

FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont

FUSE BOXES
*Crouse-Hinds Co., Ltd., Toronto.

FUSE PLUGS AND FUSES, refillable
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.

FUSES
*Economy Fuse and Mfg. Co., Montreal.

GALVANIZED IRON
*A. C. Leslie & Co., Montreal.

GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
*The A. B. Ormsby Co., Limited, Toronto.

GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
*McKinnon Industries Limited, St. Catharines, Ont.

GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

GASOLINE
*The Imperial Oil Co., Limited, Toronto.

GAUGES
*Brown Engineering Corporation, Toronto.
*John Whitfield Co., Toronto.

GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
*The John Whitfield Company, Toronto, Ont.

GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.

GELATINE
Canada Gelatine Co., Ltd., Brantford.

GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.

GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.

GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.

GILDING METAL.
*Dominion Copper Products Company, Limited, Montreal.

GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.

GLASSWARE, cut
Roden Bros., Ltd., Toronto.

GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.

GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.

GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.

GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.

GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.

GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.

GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.

GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.

GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.

GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited, New Toronto.

GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.

GUARDS (Condulet)
*Crouse-Hinds Co., Ltd., Toronto.

GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.

GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.

GUY RODS
*Crouse-Hinds Co., Ltd., Toronto.

GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.

GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

*For Display Advertisement see Index, Pages 317-318

HACK SAW BLADES and FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W. Fearman Co., Ltd., Hamilton, Ont.
HAMES, steel and iron
*McKinnon Industries Limited, St. Catharines, Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
*Beveridge Paper Co., Ltd., Montreal.
HARNESS
Lamontagne Ltd., Montreal, Que.
HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HARNESS HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEADLIGHT (electric)
*Crouse-Hinds Co., Ltd., Toronto.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.
HEMLOCK, union and oak sole
Breithaupt Leather Co., Ltd., Kitchener, Ont.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOOKS, for logging chains
*McKinnon Industries Limited, St. Catharines, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HUB CAPS
*McKinnon Industries Limited, St. Catharines, Ont.
HUBS, for Ford cars
*McKinnon Industries Limited, St. Catharines, Ont.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited Toronto.
ICE CREEPERS
Parmenter & Bulloch Co., Limited Gananoque, Ont.
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal, Que.
INCUBATORS & BROODERS
Lee Mfg. Co., Ltd., Pembroke, Ont
INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont.
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited Montreal.
INSULATORS
*Crouse-Hinds Co., Ltd., Toronto.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co. of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St Johns, Que.
IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth N.S.
IRON AND STEEL BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited Hamilton, Ont.
IRON STAIRWAYS
*Canada Wire & Iron Goods Co. Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.
IRON PUMPS
*Medicine Hat Pump & Brass Mfg. Co., Medicine Hat, Alta.
JACKS
*Globe Engineering Co., Limited, Hamilton, Ont.
JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.
JOINTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal, Que.
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
*Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
*The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
*The Peter Hay Knife Co., Limited, Galt, Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Company, Limited, Toronto.
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.
LAMP GLOBES
*Crouse-Hinds Co., Ltd., Toronto.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LATHES
*Canada Machinery Corporation, Limited, Galt, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.
LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
*United Brass & Lead, Ltd., Toronto
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER DASHES AND FENDERS
*McKinnon Industries Limited, St. Catharines, Ont.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock, union and oak sole
The Breithaupt Leather Co., Ltd., Kitchener, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.
LIGHTS (marine, side and port)
*Crouse-Hinds Co., Ltd., Toronto.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Company, Limited, Toronto.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
*United Brass & Lead, Ltd., Toronto
LOGGING CHAIN HOOKS
*McKinnon Industries Limited, St. Catharines, Ont.
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.

*For Display Advertisement see Index, Pages 317-318

LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
Henry Disston and Sons, Toronto
MACHINE TOOLS
*Canada Machinery Corporation Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special and repairs
*Canadian Rumely Co., Limited, Toronto, Ont.
*The John Whitfield Company, Toronto, Ont.
MACHINERY AND UTENSILS FOR BAKERS
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR CANDY
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR ICE CREAM
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited. Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland.
*Northern Crane Works, Limited. Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, punching and shearing.
*Canada Machinery Corporation Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, railroad and car-shop
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton.
*Canada Machinery Corporation, Limited, Galt, Ont.
MACHINERY, special
Bawden Machine Co., Limited, Toronto.
*The John Whitfield Company, Toronto, Ont.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Canada Machinery Corporation, Limited, Galt, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WORK, special and repairs
*Canadian Rumely Co., Ltd., Toronto, Ont.
*John Whitfield Co., Toronto, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MALLEABLE, for carriages
*McKinnon Industries Limited, St. Catharines, Ont.
MALLEABLE IRON CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILINGS
*The Pedlar People Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The Pedlar People Limited. Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People, Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto.
MIXERS, chocolate, dough and paint
Fletcher Mfg. Co., Ltd., Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.
MORTISERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton. Georgetown, Ont.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
MOULDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto.
NAPHTHA
*The Imperial Oil Co., Limited, Toronto.
NECKYOKES
*McKinnon Industries Limited, St. Catharines, Ont.
NICKEL OXIDE
Coniagas Reduction Co., Limited, St. Catharines, Ont.
NIPPLES, for radiators
*McKinnon Industries Limited, St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
OARLOCKS
*McKinnon Industries Limited, St. Catharines, Ont.
OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.
OFFICE DESKS
*Goderich Organ Co., Goderich, Ont.
OFFICE EQUIPMENT
*Office Specialty Co., Newmarket, Ont.
OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal,
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.
OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.
OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.
OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton.
*Imperial Oil Co., Toronto.
OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*The Imperial Oil Co., Limited, Toronto.
OILS, road
*The Barrett Co., Ltd., Toronto and Montreal.
OIL HOLE COVERS
*Canadian Winkley Co., Limited, Windsor, Ont.
OIL CUPS, both screw top and hinge lid
*Canadian Winkley Co., Limited, Windsor, Ont.
OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.
ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.
ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.
OVERALLS
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.
OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.
OVERHEAD RUNWAYS
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Richards-Wilcox Canadian Co., Limited, London, Ont.
OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.
OXYGEN
*L'Air Liquide Society, Montreal.
PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.
PACKING BOXES
Barchard & Co., Limited, Toronto.
PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.
PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.
PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.
PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.
PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.
PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.
PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
PANELBOARDS
*Crouse-Hinds Co., Ltd., Toronto.
PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.
PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.
PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.

*For Display Advertisement see Index, Pages 317-318

PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, enamelled blotting
*Provincial Paper Mills, Limited.
PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited Montreal.
PAPER, label
*Provincial Paper Mills, Limited Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall. Ont.
PAPERBOARDS
*Canada Boxboard Co., Limited, Montreal, Que.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Stauntons, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
Howard Smith Paper Mills, Limited, Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Mentreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.
PATENT LITIGATION
Ridout and Maybee, Toronto.
PATTERN MAKERS' BRASS DOWEL PINS
*Canadian Winkley Co., Limited, Windsor, Ont.
PAY ROLL AUDITS
*International Business Machines, Limited, Toronto.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited. Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co,, Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.
PIANO KEYS
The Otto Higel Co., Ltd., Toronto.
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.
PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Anthes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUGS
*Crouse-Hinds Co., Ltd., Toronto.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont.
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
*William R. Perrin, Ltd., Toronto
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton, Ont.
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSES, veneer
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSED STEEL AND BRASS GREASE CUPS
*Canadian Winkley Co., Limited, Windsor, Ont.
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULLEYS, wood split.
*Bernard Industrial Co., Fortierville, P.Q.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
Riordan Sales Co., Ltd., Montreal.
PULP, Unbleached Sulphite.
Riordan Sales Co., Ltd., Montreal.
PULP, sulphate and sulphite.
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited Toronto.
*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London,, Ont.
PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.
PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.
RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.
RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.
*United Brass & Lead, Ltd., Toronto
RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.
RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.
RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.
RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.
READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.
REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.
RECEPTACLES
*Crouse-Hinds Co., Ltd., Toronto.
REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.
REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.
REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.
REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.
REINFORCEMENT BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited. Oshawa.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.
RINGS, gold
Caron Bros., Montreal, Que.
RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ROLLING STEEL DOORS
*A. B. Ormsby Co., Ltd., Toronto.
ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.
ROOFING, metal
*The A. B. Ormsby Co., Limited, Toronto.
ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
ROOFINGS, plastic and liquid
*Beveridge Paper Co., Limited, Montreal.
ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.
ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

*For Display Advertisement see Index, Pages 317-318

ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.
RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.
RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.
RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.
RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.
SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto
SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal.
SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SANDPAPER
*Delany and Pettit, Ltd., Toronto.
SASH CORD, cotton
Hamilton Cotton Co., Hamilton.
SALT
Canadian Salt Co., Ltd., Windsor.
*Dominion Salt Co., Ltd., Sarnia.
SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.
SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.
SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.
SAWS, cross-cut and band
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWS, circular mill
Shurly & Deitrich, Galt, Ont.
SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.
SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.
SAWS, rip
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.
SCALES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton.
SCALES, counter
The Gurney Scale Co., Hamilton.
SCALES, railway track, etc.
The Gurney Scale Co., Hamilton.
SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris.
Ham & Nott Co., Ltd., Brantford.
SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
*United Brass & Lead, Ltd., Toronto
SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.
SECURITIES, engraved
American Bank Note Co., Ottawa.
SERGES
Rosamond Woollen Co., Almonte.
SHAFTING
Canada Forge Co., Ltd., Welland.
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford.
SHAPERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
SHEATHING
*The Barrett Co., Ltd., Toronto and Montreal.
SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.
SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.
*The A. B. Ormsby Co., Limited, Toronto.
SHEETS, ETC.
*Tallhan Brass & Metal Co., Hamilton, Ont.
SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited,
SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.
SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
SHIP BUILDERS
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
SHIRTS
John W. Peck & Co., Ltd., Montreal, Que.
SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.
SHOE PEGWOOD
O. Chalifour, Quebec, Que.
SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.
SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.
SHOOKS
Barchard & Co., Ltd., Montreal.
SIGNAL CELLS
Canadian National Carbon Co., Ltd., Toronto.
SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.
SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.
SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.
SILVERWARE, sterling
Roden Bros., Limited, Toronto.
SINGLETREES
*McKinnon Industries Limited, St. Catharines, Ont.
SINKS, enamelled
Amherst Foundry Co., Limited, Amherst, N.S.
SKATES, figure
Canada Cycle and Motor Co., Ltd.
SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.
SKATES, hockey
Canada Cycle and Motor Co., Ltd. Toronto.
SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.
SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.
SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited Oshawa.
SLEIGHS
Tudhope-Anderson Co., Limited Orillia, Ont.
SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.
SLOTTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
SMALL METAL STAMPINGS, in quantities
*Canadian Winkley Co., Limited, Windsor, Ont.
SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.
SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
SNAPS, for harness
*McKinnon Industries Limited, St. Catharines, Ont.
SOAPS
J. Barsalou & Co., Ltd., Montreal
SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada Limited, Montreal, Que.
SOCKETS
*Crouse-Hinds Co., Ltd., Toronto.
SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto
SODA WATER FOUNTAINS AND ACCESSORIES
Fletcher Mfg. Co., Ltd., Toronto.
SOIL PIPE
Anthes Foundry, Ltd., Toronto.
SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
SOLDER, silver
Geo. H. Lees & Co., Hamilton.
SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.
SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton Ont.
SNOWSHOES
Holt, Renfrew, Ltd., Quebec, Que.
SPECIAL MACHINERY
*Globe Engineering Co., Limited, Hamilton, Ont.
SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.
SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.
SPIRITS
*Hiram Walker & Sons, Limited, Walkerville, Ont.
SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.
SPRAYERS
Spramotor Co., London, Ont.
SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRING SHACKLE BOLTS
Canadian Winkley Co., Limited, Windsor, Ont.
SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.
SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.
STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.
STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.
STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.
*Wentworth Mfg. Co., Hamilton.
STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STAMP MILLS
*Jenckes Machine Co., Sherbrooke.
STATIONERY, office
Harris Lithographing Co., Toronto.
STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland.
STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.
STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.
STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
*Burlington Steel Co., Ltd., Hamilton, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited, Hamilton.
STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.
STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.
STEEL DOORS, rolling
*The A. B. Ormsby Co., Limited, Toronto.
STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
STEEL PLATE WORK
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Toronto Iron Works, Ltd., Toronto.
STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.
STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
STEEL SHELVING
*Dennis Wire & Iron Works Co., London.
STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.
STEEL WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
STELLITE
*Deloro Smelting & Refining Co., Ltd., Deloro and Toronto.

*For Display Advertisement see Index, Pages 317-318

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STEPS, for buggies and carriages
*McKinnon Industries Limited, St. Catharines, Ont.
STEREOTYPING
Central Press Agency, Toronto
STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
STONE
The Hagersville Contracting Co., Hagersville, Ont.
STONEWARE
*Jas. W. Foley & Co., St. John, N.B.
STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.
STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.
STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.
STOVES AND RANGES
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.
STRAWS, paper drinking
Fletcher Mfg. Co., Ltd., Toronto.
STRAWBOARD
*Canada Boxboard Co., Limited, Montreal, Que.
STREET LIGHTING FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.
STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
STUMP EXTRACTORS
*The John Whitfield Company, Toronto, Ont.
SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.
SURFACERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
SWITCH STANDS
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton,
TANKS
*Toronto Iron Works, Ltd., Toronto.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.
TANKS, steel storage
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.
TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.
TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
TENTS
Turner, J. J., & Sons, Peterboro,
*Scythes & Co., Ltd., Toronto.
TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.
TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.
TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.
TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TIE PLATES, for railways
*McKinnon Industries Limited, St. Catharines, Ont.
TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TIME RECORDERS
*International Business Machines, Limited, Toronto.
TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TOOLS
*The John Whitfield Company, Toronto, Ont.
TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton.
TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton.
TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.
TRACTORS, kerosene and gasoline
*Gilson Manufacturing Co., Ltd., Guelph.
TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.
TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.
TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.
TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.
TRUCKS
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton.
*Northern Crane Works, Limited, Walkerville.
TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.
TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.
TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.
TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.
TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.
TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
TUBING, Fibre
*Beveridge Paper Co., Limited, Montreal.
TUBING, gold and silver
Canadian Seamless Wire Co., Toronto.
TUBS, Ice cream
Fletcher Mfg. Co., Ltd., Toronto.
TUMBLERS, foundry
*Northern Crane Works, Limited, Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TURBINE PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
TURPENTINE
*Brown Corporation, La Tuque, Que.
TWEEDS
Rosamond Woollen Co., Almonte, Ont.
TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.
TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.
TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd., Walkerville, Ont
UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.
UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
UNIONS
*Dart Union Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.
VALVES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
T. McAvity & Sons, Ltd., St. John, N.B.
*Penberthy Injector Co., Ltd., Windsor.
VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Mueller Mfg. Co., Ltd., Sarnia.
*Penberthy Injector Co., Ltd., Windsor.
*United Brass & Lead, Ltd., Toronto
James Morrison Brass Mfg. Co., Limited, Toronto.
VALVES, pressure reducing
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, regrinding globe, angle, cross checks, swing checks.
*Mueller Mfg. Co., Ltd., Sarnia.
Penberthy Injector Co., Ltd., Windsor, Ont.
VALVES, regulating
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.
VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt
J. & J. Taylor, Ltd., Toronto.
VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.
VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.
VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
VOLTMETERS AND AMMETERS
*Crouse-Hinds Co., Ltd., Toronto.
WAGONS
TudhopeAnderson Co., Ltd., Orillia.
WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.
WASHERS
*The Steel Company of Canada, Limited, Hamilton.
*United Brass & Lead, Ltd., Toronto
WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.
WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.
WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.
WASTES, wool and cotton
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited, Montreal.
*The Barrett Co., Ltd., Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton, Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont.
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEEL FLANGES
*McKinnon Industries Limited, St. Catharines, Ont.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal, Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia, Ont.
WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHIPSOCKETS
*McKinnon Industries Limited, St. Catharines, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont

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WHITE LEAD
Brandram-Henderson, Ltd., Montreal. Que.
A. Ramsay & Son Co., Montreal, Que.

WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford. Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Medicine Hat Pump & Brass Mfg. Co., Medicine Hat, Alta.

WINDOW SHADES
Daly & Morin, Montreal, Que.

WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.

WIRE BALE TIES
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.

WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal. Que.

WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co of Canada, Ltd., Hamilton, Ont.

WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.

WIRE, insulated electric
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co of Canada, Ltd., Hamilton, Ont.

WIRE, weatherproof
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd. Hamilton.

WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co. Hamilton.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Ltd., Toronto.

WIRING DEVICES
*Crouse-Hinds Co., Ltd., Toronto.

WOOD
Standard Fuel Co., Toronto.

WOOD BORERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

WOOD PRINTERS
Barchard & Co., Ltd., Toronto.

WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi Chicoutimi, Que.

WOODBOARD
*Canada Boxboard Co., Limited, Montreal. Que.

WOOD SHOP, general work
*Canadian Rumely Co., Limited, Toronto, Ont.

WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt. Ont.

WOOD STAVE PIPE
T. A. Morrison & Co., Montreal.

WOOL
*H. V. Andrews, Toronto.

WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte, Ont.

WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada, Ltd., Niagara Falls, Ont.

WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.

WRENCHES
*McKinnon Industries Limited, St. Catharines, Ont.

WROUGHT IRON PIPE
*The Steel Compony of Canada, Ltd., Hamilton.

WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.

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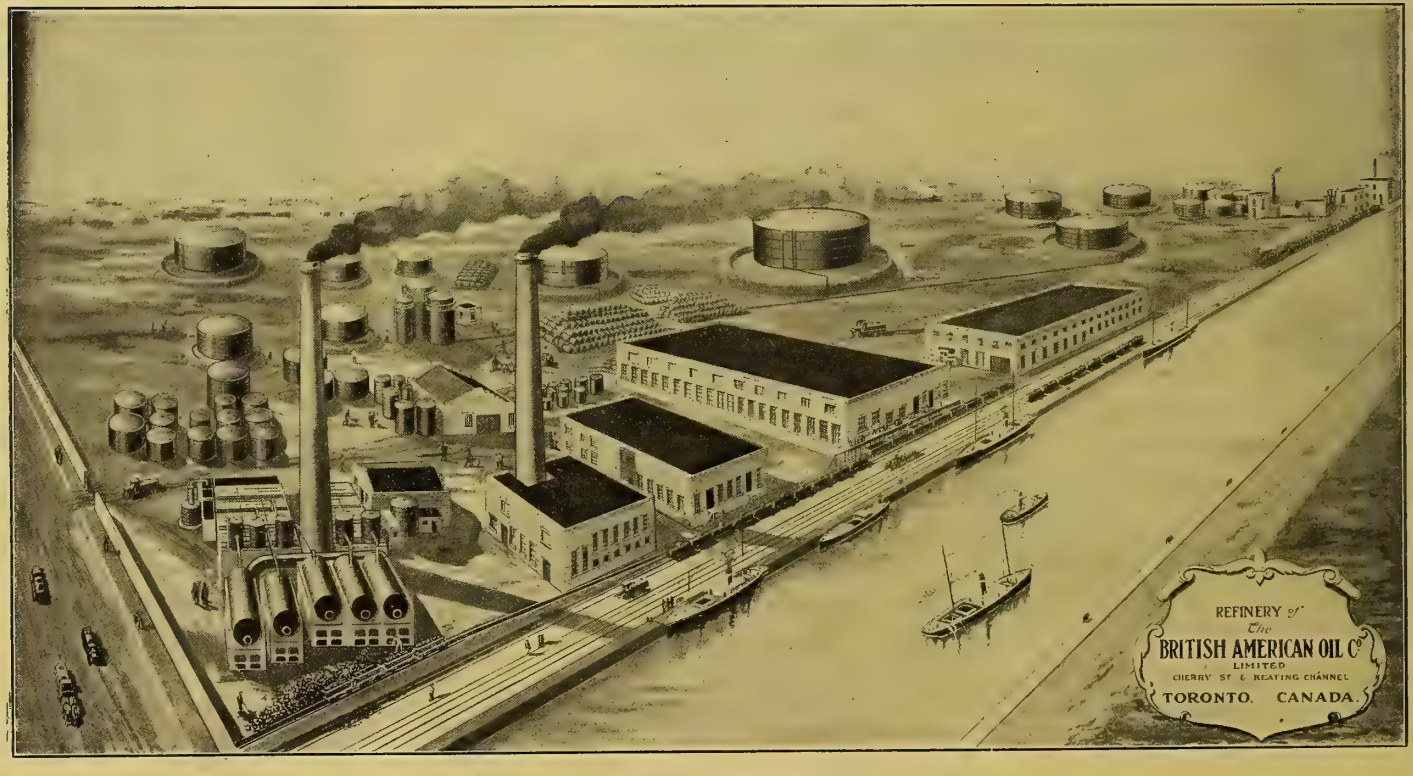
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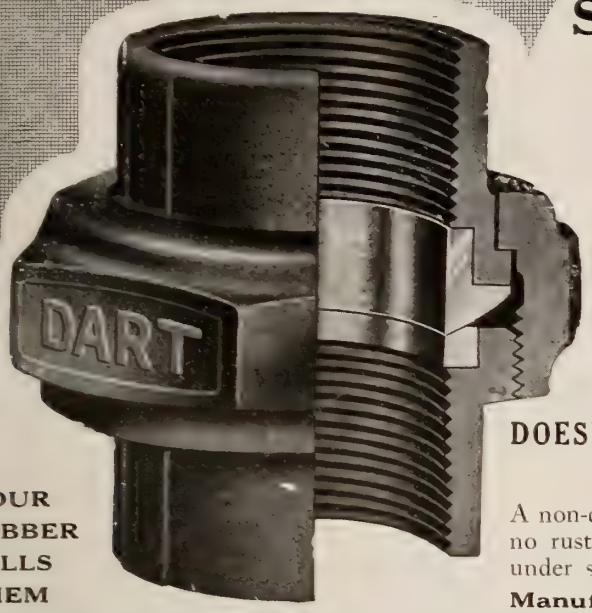
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TORONTO

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BY

The Consolidated Mining and Smelting Co. of Canada, Ltd.

TRAIL, British Columbia

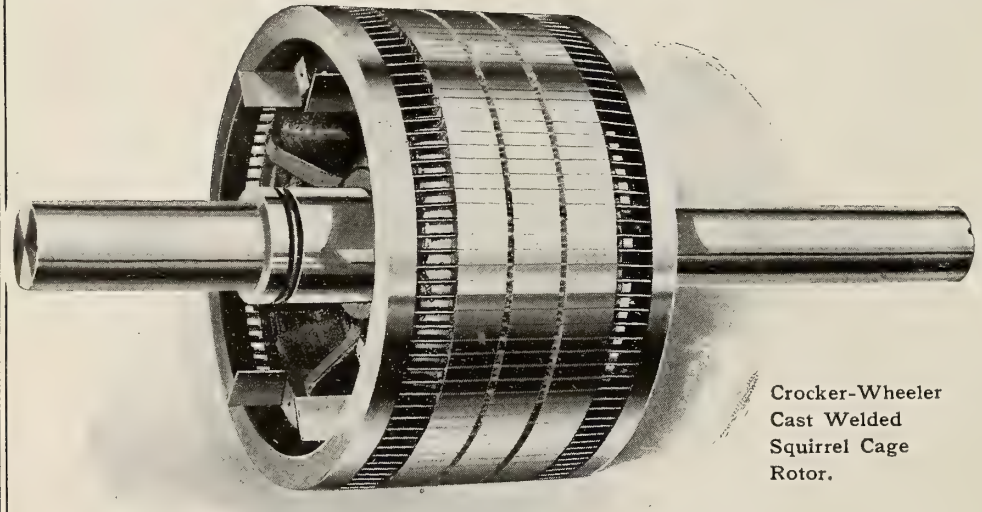
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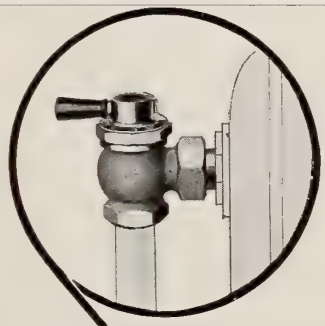


Heating Efficiency

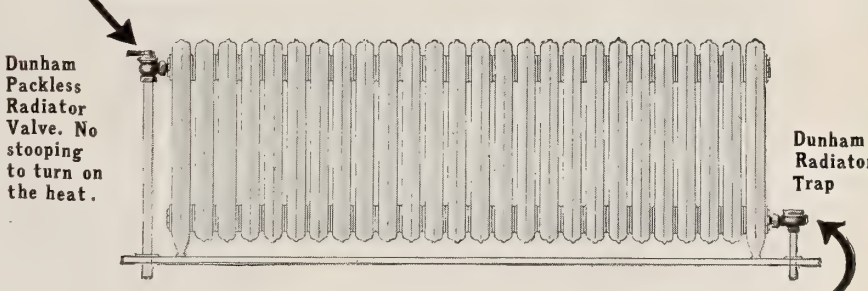
Here is pictured the Dunham Radiator Valve and the Dunham Radiator Trap in their correct relation to the radiator.

You can see the neatness, the "no-stooping" location of the valve which is really packless—but you must accept our word that the Dunham Trap does exactly what the perfect trap should: gives free circulation of steam by removing all air and water from the radiator, without permitting the steam to escape into the return pipe.

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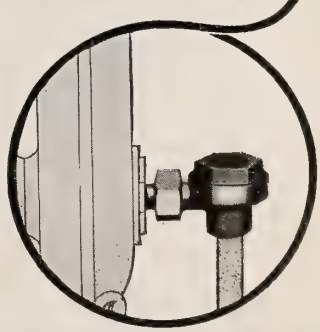


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Dunham Packless Radiator Valve. No stooping to turn on the heat.

Dunham Radiator Trap



Whether you design, own, or manage buildings which must be heated, you will find Dunham Heating Service worth investigation.

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In High Speed or Carbon Steel



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Plain Side Convex
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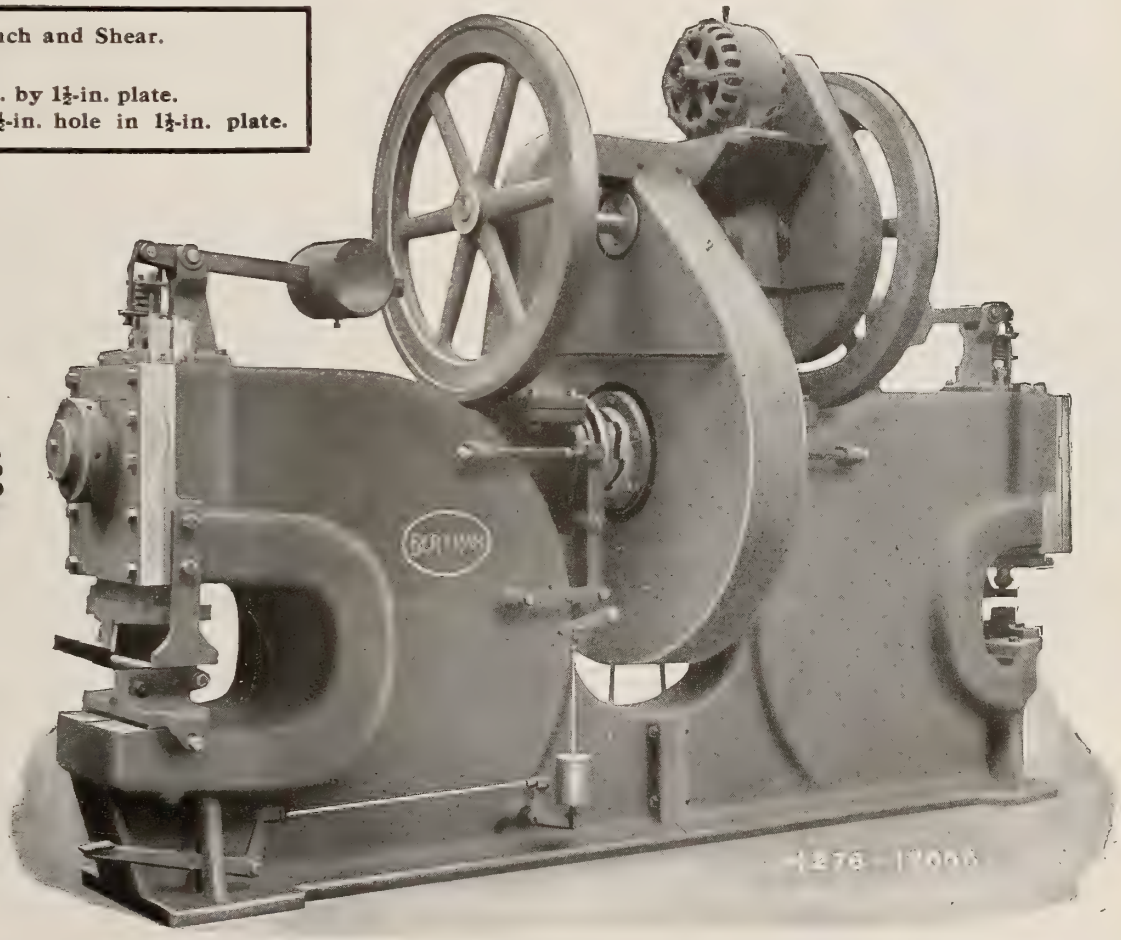
The assistance and advice of our engineers are yours for the asking.

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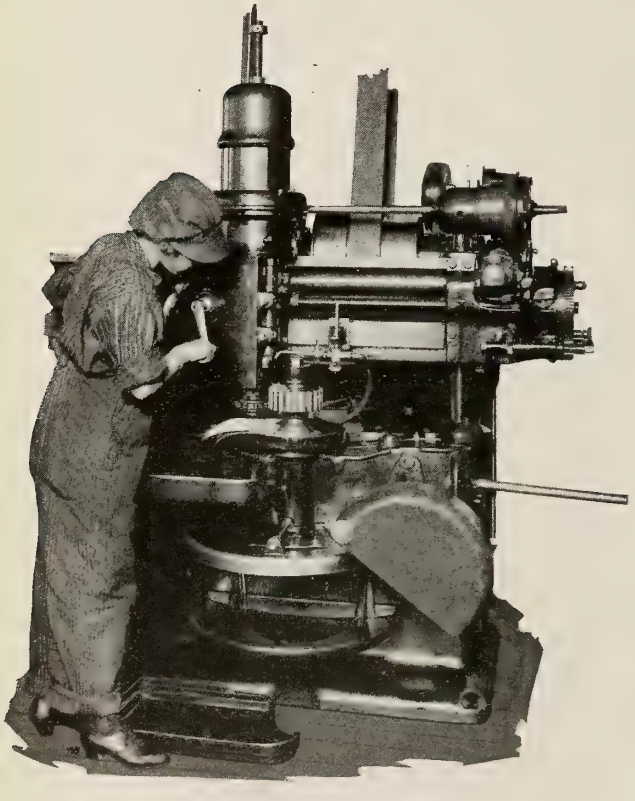
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You really want your Stock Rooms to look like these

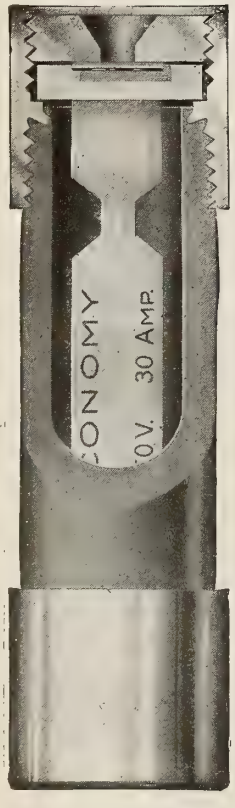
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A few years ago, when others were deriding the idea of making a fuse renewable without sacrificing safety or accuracy, the makers of

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Renewable FUSES

took the lead in accomplishing the "impossible". The "Drop Out" Renewal Link afforded the true solution of the problem. It instantly restores a blown Economy fuse to its original efficiency. The arc is smothered without the aid of powdered fillers. Anyone can replace the link and renew the fuse in a jiffy.



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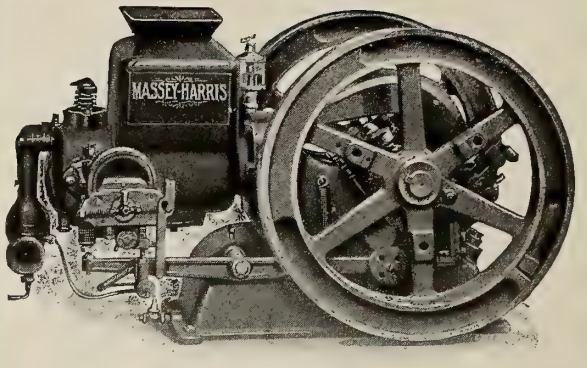
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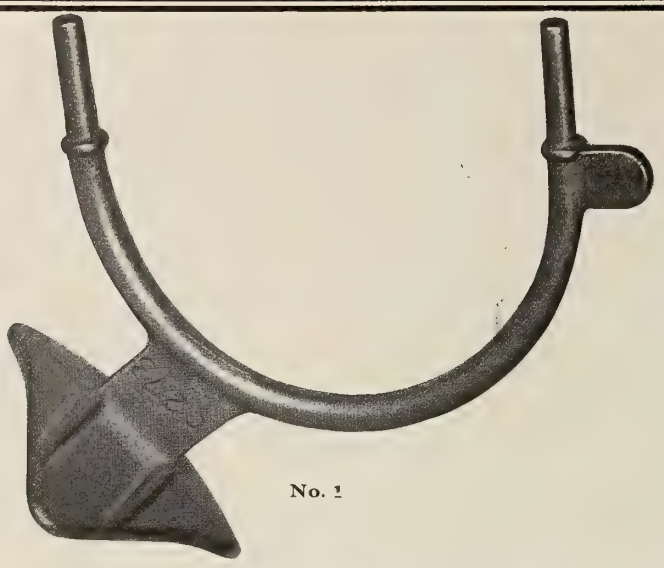
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"For Every Industrial Requirement"

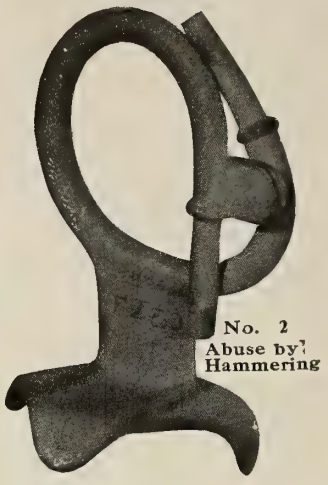
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THE HYDRAULIC MACHINERY COMPANY, Limited

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No. 1



No. 2
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In an effort to test the Quality of McKINNON Malleable Iron in these Automobile Headlight Brackets, we have abused the metal by severe hammering. See No. 1. See No. 2.

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St. Catharines, Ontario, Canada

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DU PONT FABRIKOID
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A truck upholstery made to withstand hard, constant wear and adverse weather conditions.

It is waterproof, grease-proof and washable.

It is better suited than leather for upholstering commercial cars.

Write for booklet telling in detail the facts of Truck Special Fabrikoid.

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TORONTO

DU PONT

Sale of Pulpwood Lands

In Northern Ontario

The Lake Superior Corporation and Algoma Eastern Railway Company are open to negotiate for the disposal of certain lands

APPROXIMATELY 682,000 ACRES

situated for the most part in that section of Northern Ontario known as the Clay Belt, and comprising the Townships of Storey, Langemarck, Dowsley, Nassau, Shetland, Staunton, Orkney, Magladery, Caithness, Rykert, Doherty, Whigham, Coppell, Newton, Dale, McOwen, Frater.

The lands in question are accessible to the Algoma Central, Trans-Continental, Canadian Northern, and Canadian Pacific Railways, and should be of particular interest to pulp and paper makers, also to settlers, in view of their agricultural possibilities.

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Where Jenkins Bros.' Valves are Made

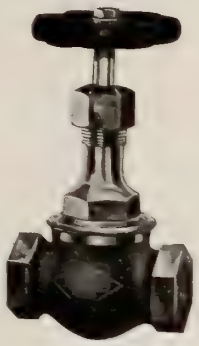


Fig. 106



Factory and Head Office of
JENKINS BROS. LIMITED
Montreal, Canada



Fig. 141

Where plants are scientifically operated, valve value is measured by service rendered, and by yearly ***lack*** of up-keep cost.

If valves break down before other items of equipment, an injustice is done to the entire plant; because valves should last as long as good plant equipment. Good valves do.

Consider—40 per cent. of the Nation's Coal Pile is lost each year by power plants, from their coal investment through poor steam transmission, and from unnecessary labor costs.

JENKINS BROS.' VALVES will keep your plant running and save you money.

A Protection to the User

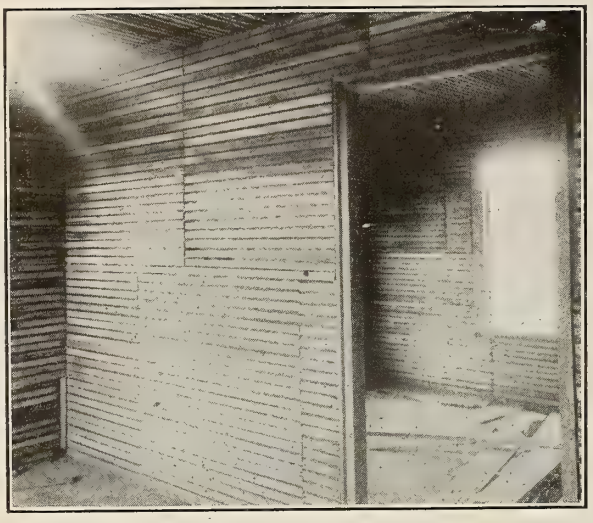
A steam user who installs Jenkins Bros.' Valves, can do so with the knowledge that he is protected by the maker against defects and imperfections. Our dealers have instructions to replace, without question, any imperfect or defective Jenkins Bros.' Valve returned to them.

Catalogue No. 8 sent free on request.

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European Branch:
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Bishopric Stucco Board is applied to the interior outside walls, ceilings and partitions and ready for plaster This method of construction increases the warmth and durability of a building, besides making partitions sound-proof and much more satisfactory than ordinary lath and plaster, at a considerable saving in price.

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529Z Bank St., Ottawa

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Material Handling Plant has back of it 55 years of successful experience.

HOISTING ENGINES
STEEL DERRICKS
DIPPER DREDGES
CLAMSHELL BUCKETS
DERRICK IRONS
SUCTION DREDGES
etc.

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BRASS
BRONZE
GUNMETAL
ALUMINUM

Ask Us For An Estimate on Your Future Requirements

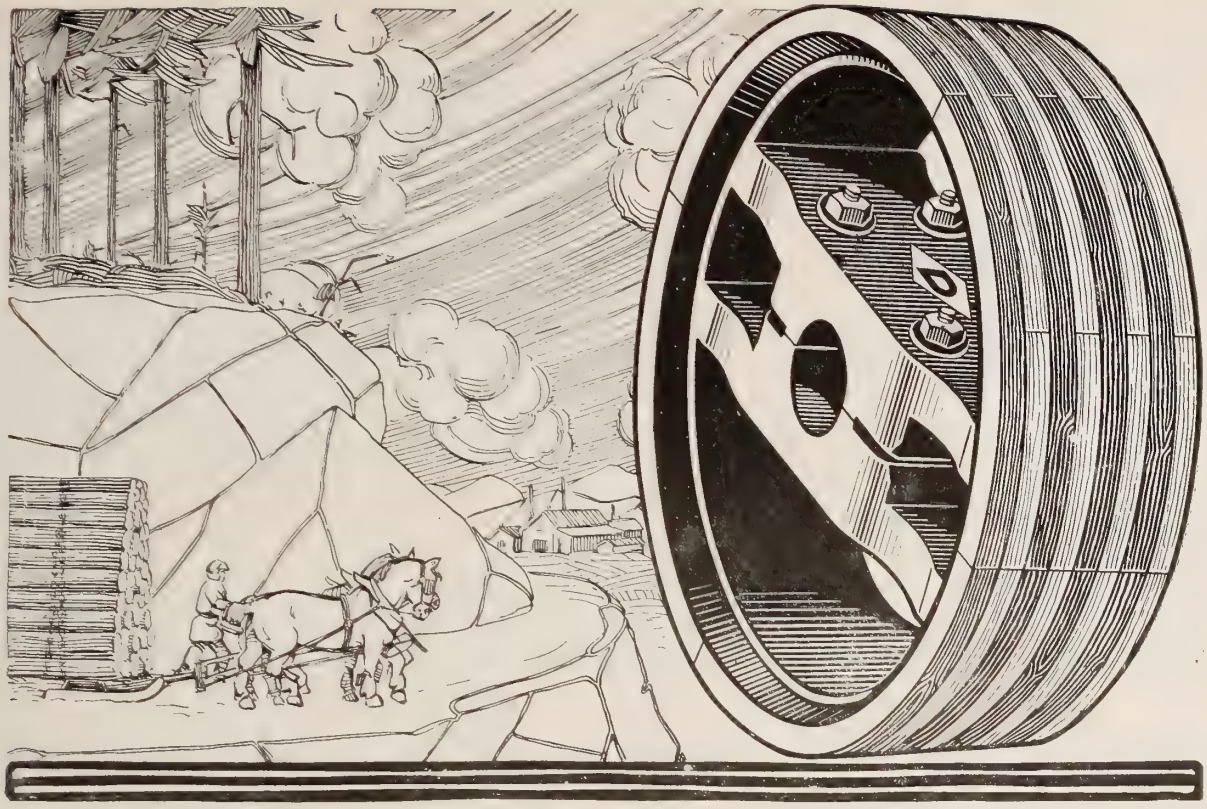
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We have a Limited Amount
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First Pressure Castor Oil

Exceptional Quality

Can give immediate delivery

DOMINION OIL COMPANY
LIMITED
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Preferred to Metal Pulleys

IN almost every plant where there is a battery of pulleys, superintendents invariably prefer the Dodge Wood-Split Pulley to any metal pulley. Their experience is, that the Dodge Wood-Split Pulley gives greater returns in horse power values.

For these reasons:---Its surface provides greater adhesion; consequently there is less belt slip. The weight friction is not as great, because Dodge Wood-Split Pulleys are lighter, and better balanced; and there are no keys to fit, nor set screws to work loose.

In addition, Dodge Wood-Split Pulleys may be had at a moment's notice. We ship all sizes up to six feet in diameter on the day orders are received.

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Manufacturing Co., Limited

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CANADA'S LARGEST BUILDERS OF TRANSMISSION MACHINERY

THE GALT FOUNDRY CO., Limited

OFFICE AND WORKS:

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PRODUCT — **THE GALT SPRINKLER STOKER**

For Smokeless and Economical Combustion and Utilizing Low-Grade Fuels

The Galt Sprinkler Stoker is a real Coal Saver. and can be installed on Power and Heating Boilers, Annealing Furnaces, and in all classes of Installations.

Will burn any kind of fuel from anthracite dust up to 3" lump.

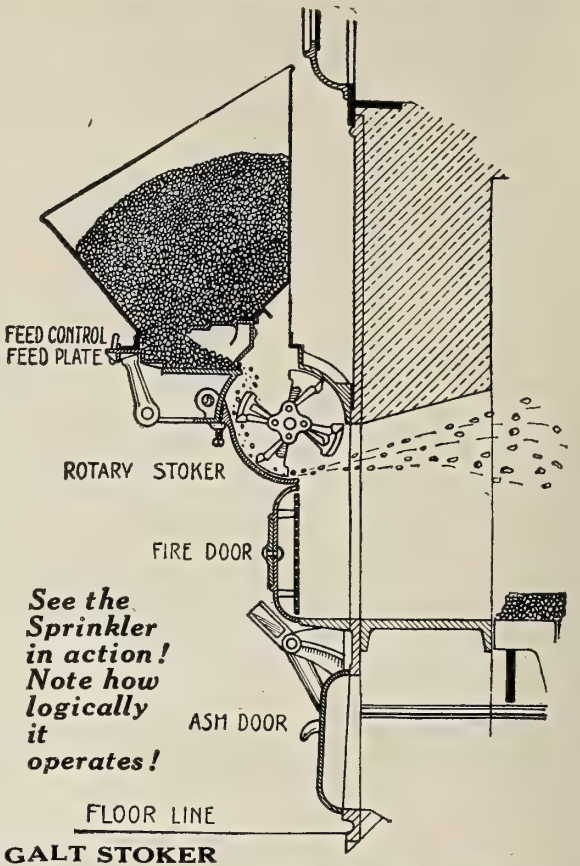
ADVANTAGES

They give complete and smokeless combustion.
" feed the fuel to the furnace with the doors shut.
" do not require skilled Firemen.
" maintain a brilliantly hot fire.
" are simple, strong and beautifully made.

The Galt Sprinkler Stoker automatically feeds and uniformly spreads the fuel to the furnace in a light, continuous stream, and gives a perfectly level fire 3 to 4 inches thick.

Send for one of our Combustion Engineers to look over your plant—no obligation.

Galt Stokers Burn Cheap Fuel and Less of it



See the Sprinkler in action! Note how logically it operates!

ASK FOR 10 FACTS AND 10 LETTERS ABOUT THE GALT STOKER



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FINISHED BRIGHT
FOR
ELECTRO PLATING
DEEP DRAWING QUALITY
ACCURATE GAUGE AND WIDTH
WE SOLICIT YOUR ENQUIRIES

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PREMIER
CANADA
GALVANIZED SHEETS

REDUCED PRICES
AND
GOOD DELIVERIES
NOW POSSIBLE

Send your specifications and we will quote you best prices on
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HAMILTON, CANADA

"CRANES MADE IN CANADA"



Electric Traveling Cranes

HAND POWER TRAVELING CRANES
ELECTRIC HOISTS, AIR HOISTS, FOUNDRY EQUIPMENT

Northern Crane Works, Limited - - - - Walkerville, Ontario



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Hynes, Feldman & Watson, Architects

Raymond Construction Co., Contractors

Truscon BUILDING PRODUCTS

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Truscon System represents considerably more than the mere sale of Truscon Building Products; it means an experience in over twenty thousand important structures of all kinds in all parts of the world.

Truscon Service Anticipates, Satisfies and Endures

Build *Better* With
Truscon
BUILDING
PRODUCTS

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OF CANADA, LIMITED
WALKERVILLE, ONTARIO

Montreal Toronto Winnipeg Calgary Vancouver
Warehouses at Toronto and Calgary



Better and Cheaper than Sawtooth

Sawtooth roofs are good for narrow buildings, bad for wide ones.

They do not ventilate the center: the wider the building the larger the "dead" area.

They give a one-direction light, with unpleasant contrasts for anyone facing north.

The modern lighting and ventilating roof is the

Pond Truss

PATENTED

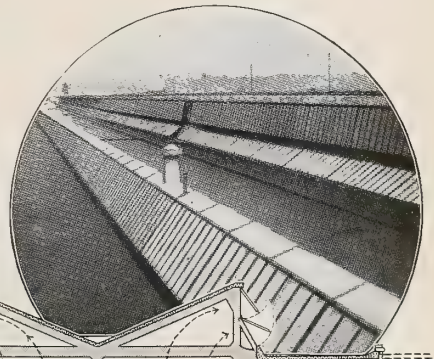
THE ROOF THAT VENTILATES

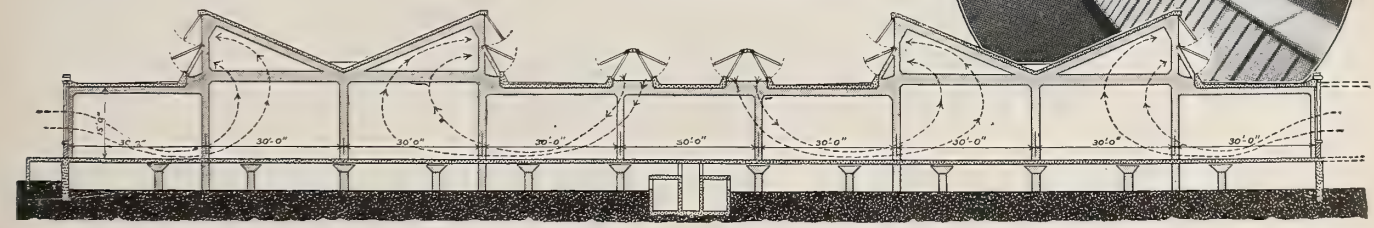
It utilizes the natural air movements in a wide building. It gives an all-directions light, without shadows or glare. It does both at less than sawtooth cost.

A notable Pond Truss building is here shown. Between the outlet lines of Pond Continuous Sash are other lines admitting both light and air while excluding rain. All the roof sash are operated by electric motors in lines hundreds of feet long.

The Pond Truss represents the best possible use of top-hung weatherproof Pond Continuous Sash. It permits one-story factory buildings to be made of any desired width and length, without the drawbacks of ordinary roofs. It is patented, and its use is licensed where Ormsby-Lupton Products are used in the same building.

Booklet, "Air, Light and Efficiency," tells more about Ormsby-Lupton Service and Products.





THE A. B. ORMSBY CO., LIMITED - TORONTO

Associated with The Metal Shingle & Siding Company, Limited
Factories at Preston, Toronto, Montreal, Winnipeg, Saskatoon, Calgary

AGENTS:

Maritime Provinces:
F. A. Gillis & Co., Halifax, N.S.

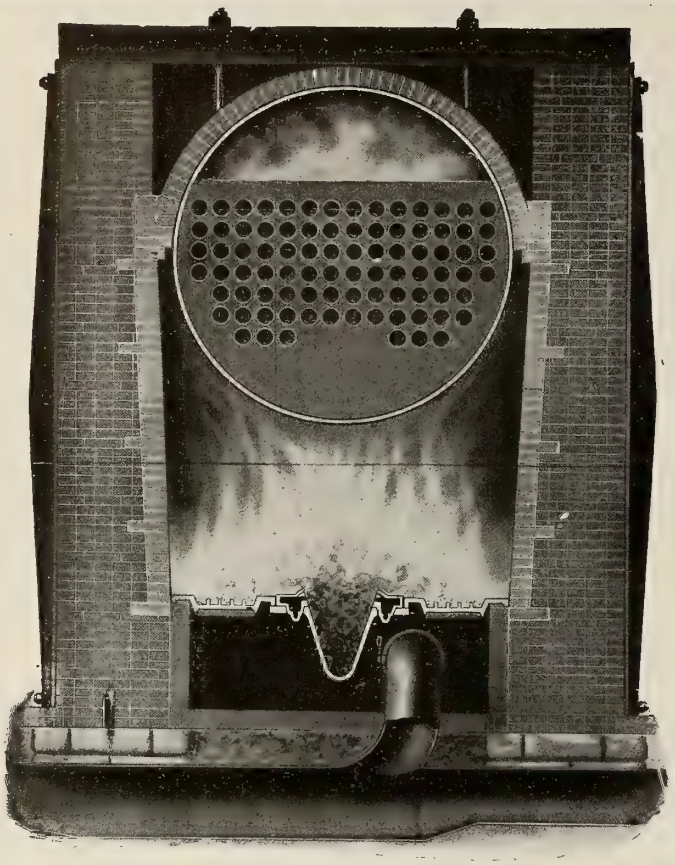
British Columbia:
A. T Chambers, Vancouver

Pond Continuous Sash for Pond Truss, sawtooths, monitors and side walls

Pond Operating Device for long lines of sash.

Ormsby

Ormsby Steel Sash
Pivoted Factory Type
Counterbalanced Type
Counterweighted Type
Ormsby Steel Partition and Doors



ECONOMY
IN COAL AND LABOR

is what every manufacturer is interested in. And that's why you should be interested in the

JONES
Underfeed Stoker

A **Jones Stoker** burns any grade of bituminous coal from Dust to Run of Mine with savings to you of between 15 and 25 per cent.

At the same time it will increase the steaming capacity of your boilers, prevent soot and smoke and get the maximum heat value from every pound of coal.

Proof for the Asking!

Jones Underfeed Stoker Co.
Limited
37-41 Britain Street, Toronto.

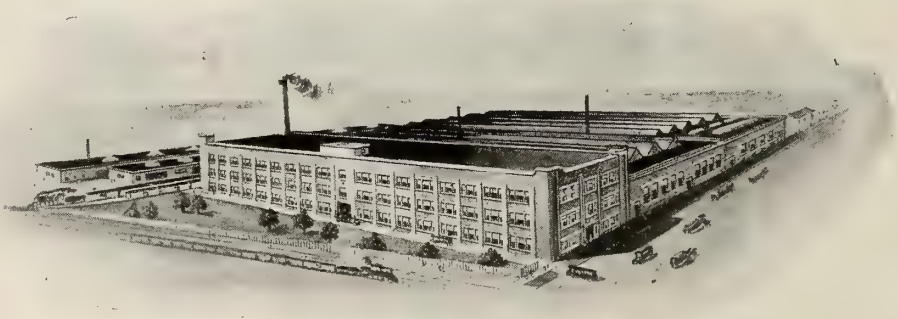
SHEET METAL STAMPINGS
PRESSED STEEL PARTS

You can replace castings in many places with Sheet Metal Parts, and thereby make
A BIG SAVING

LIGHTING FIXTURES

Stamped and Spun Brass Goods **Screw Machine Products**

Secure Our Advice and Estimates



Write for Our Latest Catalogues, Advising in What Line You Are Interested

W. H. BANFIELD & SONS, LIMITED

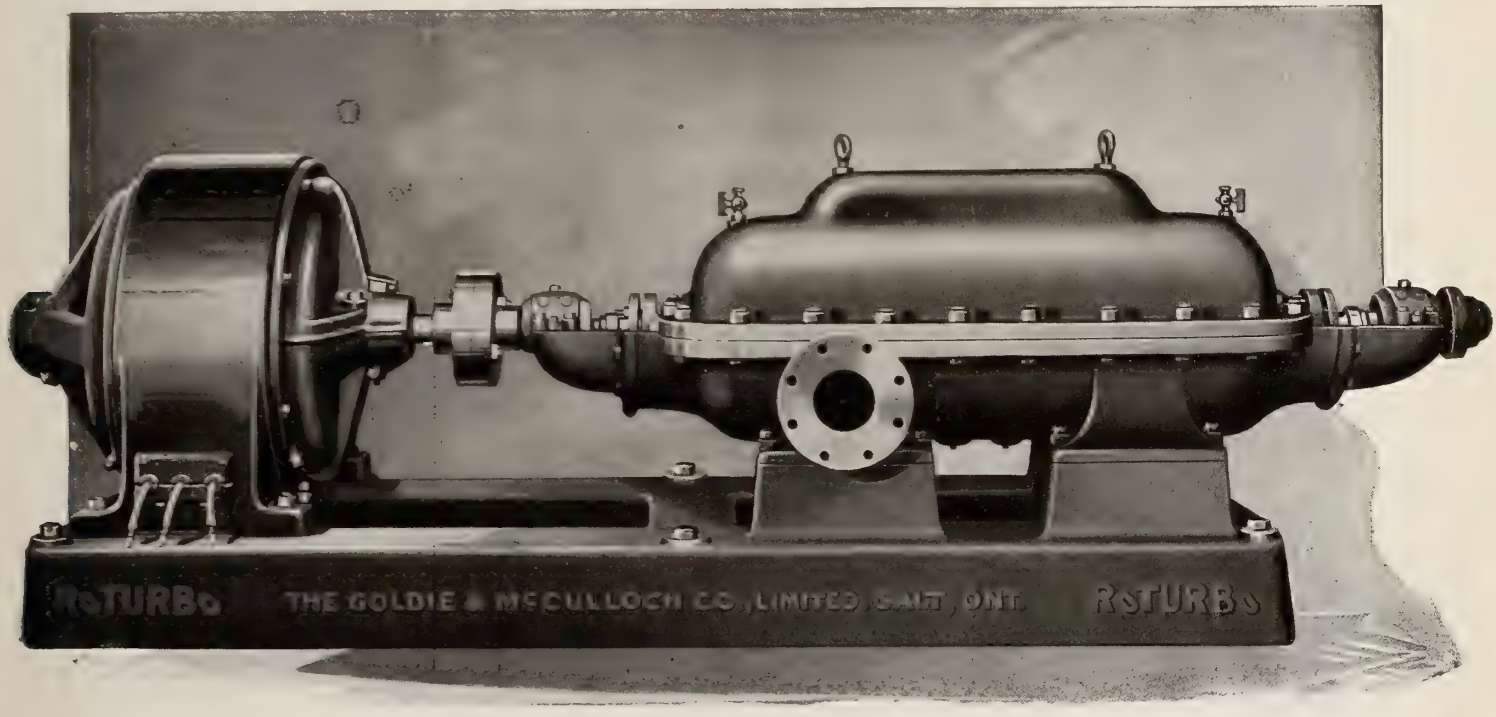
Head Office and Works:
370-386 Pape Avenue
TORONTO

Show Rooms:
80 King Street West
TORONTO

RoTURBo PUMPS

ARE SELF-REGULATING

And bear in mind that in addition to this self-regulating feature the original high efficiency of **RoTURBo** Pumps remains practically constant throughout a wide range of duty.



Motor Driven Type B4. Eight Stage REES **RoTURBo**
Patent Pressure Chamber Pump

A high pump efficiency rating amounts to very little unless it remains constant over a wide variation of pressure heads. **RoTURBo** design meets these requirements. Its self-regulating features also insure your prime mover against damage by overloading.

The **RoTURBo** will meet your pumping problems with greater economy and with higher efficiency.

We are glad to announce that we have secured the sole manufacturing rights for CANADA of the REES **RoTURBo** PRODUCTS and shall be pleased to supply complete information on request.

THE GOLDIE & McCULLOCH CO., Limited

Head Office and Works: GALT, ONTARIO, CANADA

TORONTO OFFICE: Suite 1101-2, Traders Bank Bldg.

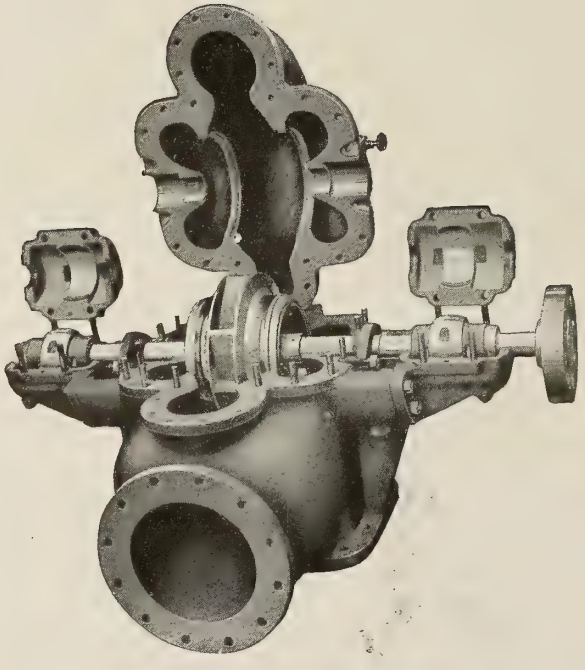
WESTERN BRANCH: 248 McDermott Ave., Winnipeg, Man.

QUEBEC AGENTS: Ross & Greig, 412 St. James St., Montreal, Que.

BRITISH COLUMBIA AGENTS Robt. Hamilton & Co., Vancouver, B.C.

THE CIRCO PAGE

The Cameron Pump



Casing Open, Showing Accessibility

The CAMERON double-suction centrifugal pump has double casing rings around the impeller, spherical, self-aligning, ring-oiling type bearings, and large water passages on both suction and discharge, giving minimum friction.

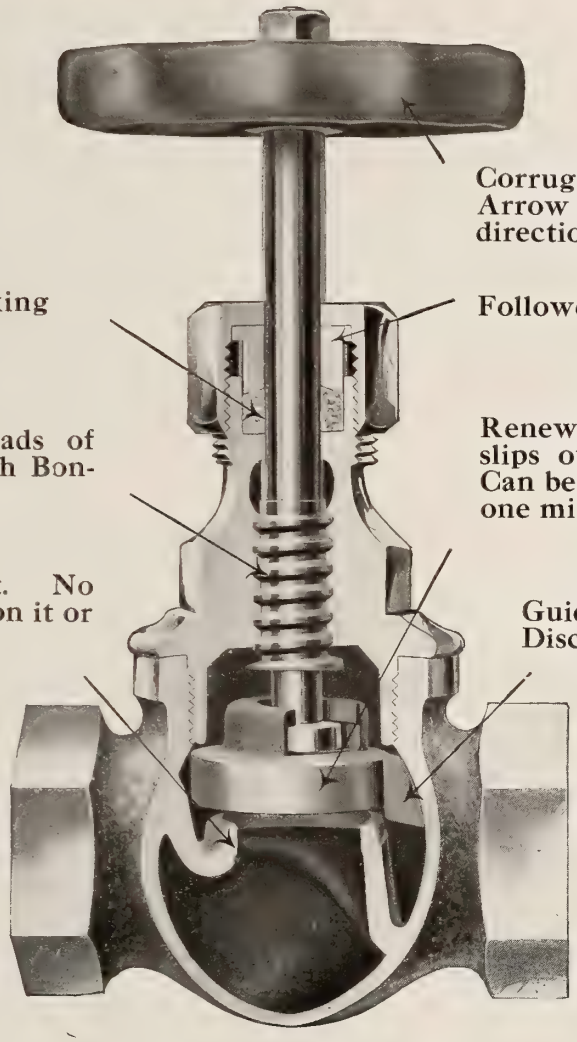
With the horizontally split casing, there is no need to disconnect piping for inspection and cleaning.

CAMERON Pumps have been known for twenty-five years for their splendid quality

Canadian Ingersoll-Rand Co., Limited

Sydney Sherbrooke Montreal Toronto Cobalt Winnipeg Nelson Vancouver

Fairbanks Renewable Disc Valves



Corrugated Iron Wheel, Arrow cast on wheel shows direction valve opens.

Palmetto Twist Packing

Follower in Stuffing Box.

At least Four Threads of Spindle engaged with Bonnet at all times.

Renewable Bakelite Disc slips over end of spindle. Can be replaced in less than one minute.

Raised Round Seat. No sediment can lodge on it or injure disc.

Guide cast on Body holds Disc centrally over seat.

Globe or Angle

Screwed or Flanged



The disc of the Fairbanks Renewable Disc Valve can be renewed in less than a minute without removing the valve from the line, a wrench being the only tool necessary.

Everything in Mechanical Goods

The Canadian Fairbanks-Morse Co., Limited

"Canada's Departmental House for Mechanical Goods"

St. John, Quebec, Montreal, Ottawa, Toronto, Hamilton, Windsor, Winnipeg, Saskatoon, Calgary, Vancouver, Victoria

Nova Scotia Steel & Coal Co.
LIMITED

PLATES

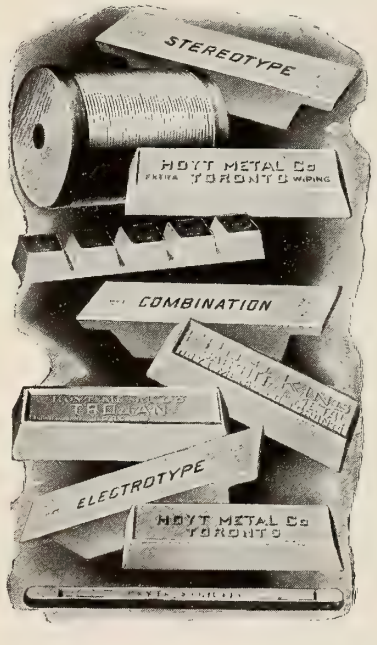
1/8 to 5/8" thick up to 48" wide, weighing up to 1060 lbs. each

Fluid Compressed Steel Forgings

We manufacture Merchant Bars, Rounds, Flats, Squares, Ovals, Half Ovals, Tires, Sleigh Shoes, Plain or Twisted Concrete Bars, Agricultural Sections, Cold Drawn Shafting, Machinery Steel, Angle Bar Fish Plates, Track Spikes and Bolts.

General Sales Office:
WINDSOR HOTEL, MONTREAL

Head Office:
NEW GLASGOW, N.S.



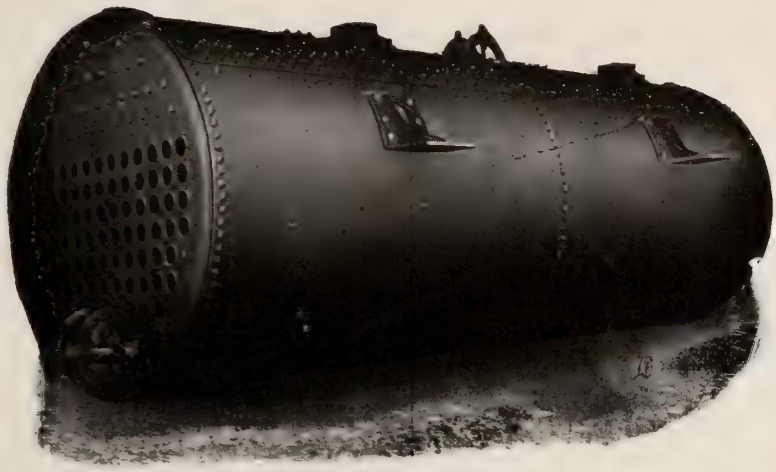
Nickel Genuine stands up under extreme heat

In foundries, glass works, etc., where machinery bearings are subjected to intense heat from without, in addition to heat produced by friction, a peculiarly hard babbitt must be used. The mixing of such a metal is an exact science—a science rarely crowned with such a success as Hoyt's Nickel Genuine. This wonderful heat defier is made with scrupulous care, is always correct in mixture to an ounce, and can be relied upon to give best results where bearings are subjected to exceptional heat. ***If you've had trouble with soft bearings try Nickel Genuine.***

HOYT METAL COMPANY
TORONTO, CANADA

New York, N. Y. **London, Eng.** **St. Louis, Mo.**

BOILERS



STANDARD RETURN TUBULAR BOILER

We make boilers of all kinds for any service.

We are also sole Canadian makers of Erie City Water Tube Boilers, Vertical and Horizontal.

The large number of pleased and satisfied owners of "INGLIS" Boilers is our best advertisement.

For (52) fifty-two years our boilers have been the standard. We have installations of our different types of boilers, which our representatives will be pleased to show to prospective purchasers. Write us for prices, etc.

INGLIS' PRODUCTS ARE "MADE-IN-CANADA"

The John Inglis Company, Limited

ENGINEERS AND BOILERMAKERS

14 Strachan Avenue **Toronto, Canada**

Ottawa Representative: J. W. ANDERSON, 7 Bank Street Chambers

FORD PRICES

The policy of the Ford Motor Company of Canada, Limited, to sell its cars for the lowest possible price consistent with dependable quality is too well known to require comment. Therefore, because of present conditions there can be no change in the price of Ford Cars.

Ford

Runabout - - -	**$ 660**
Touring - - -	**690**
Coupe - - -	**875**
Sedan - - -	**1075**
Standard Chassis -	**625**
One-Ton Truck Chassis	**750**

These prices are F. O. B. Ford, Ontario

All prices subject to war tax charges, except truck and chassis

Ford Motor Company of Canada, Limited

FORD - - ONTARIO



The Lincoln Paper Mills, Merriton, Ont., showing the exclusive use of Dominion Friction Surface Belting in Paper Mill (above) and on Motor Drive in Sulphite plant (right).

"Perfectly Satisfactory Service"

This is the way the Lincoln Paper Mills of Merriton, Ontario, sums up

Dominion Friction Surface Belting

The conviction expressed in this statement is clearly established by the fact that our belting is used exclusively in both the paper mill and sulphite plant of the Lincoln Paper Mills.

The reason is obvious Dominion Friction Surface Belting is not merely rubberized fabric—it is saturated with our special friction rubber surfacing which makes it take a non-slip grip on pulleys that transmits the total force, of each power unit, that can be transmitted by belting.

It is the result of over fifty years of belt-making experience by the oldest and largest rubber organization in Canada.

It is absolutely uniform and dependable—conserves power and labor—"speeds up" production and is the most economical belt for every transmission purpose.

Our belting engineers have increased the efficiency of belting equipment in Canada's largest manufacturing plants—the services of these experts are at your call without charge.

A phone or wire to our nearest branch places you under no obligation and will help to cut your manufacturing cost.

CANADIAN CONSOLIDATED RUBBER CO. LIMITED

DOMINION RUBBER SYSTEM

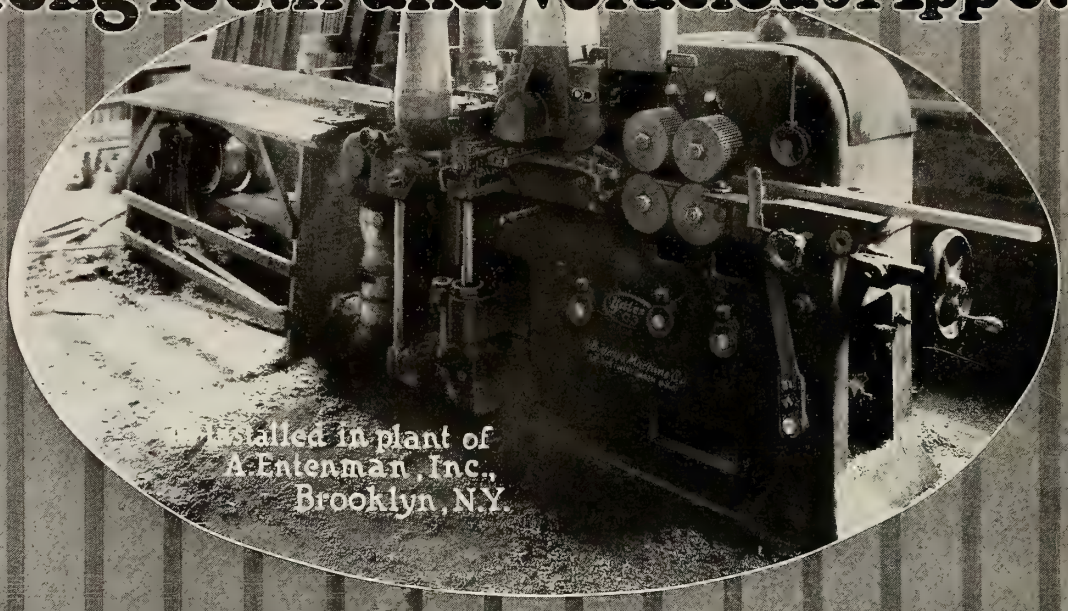
AND ASSOCIATED COMPANIES

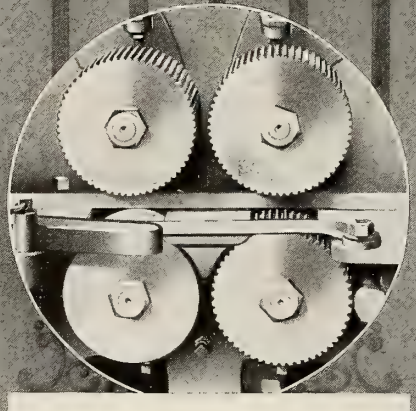
Service Branches

Halifax,	Hamilton,	Brandon,
St. John,	London,	Regina,
Quebec,	Kitchener,	Saskatoon,
Montreal,	North Bay,	Edmonton,
Ottawa,	Fort William,	Calgary,
Toronto,	Winnipeg,	Lethbridge,
Vancouver,		Victoria.

21

Strong Teeth and Voracious Appetite





Section of "C-3" showing strong and positive feed

"The Invariable Choice of the Man Who Knows"

Yates

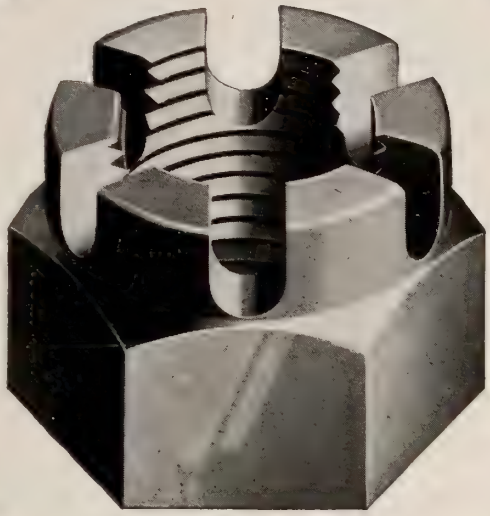
Type C-3 Moulder

combines strength, accessibility, and speed to a remarkable degree. The capacity of this machine for handling the smaller mouldings is unequalled.

Feedworks have many unique features which add greatly to their strength. Entirely open side so that the utmost accessibility is secured. Reversible steel plate on working bed gives four ground surfaces and many times the wear of the ordinary bed. It is the last word in moulders.

Send for free detailed illustrated circular.

P. B. Yates Machine Co. Ltd.
Hamilton, Ont., Canada



Castellated Nuts

Cap and Set Screws

PLAIN NUTS IN STOCK



Standard sizes and threads

Special screw machine work made to specifications from Iron, Steel and Brass Bars in sizes up to 2¼" and 10½" long.

Quotations on your samples or blueprints.

The National Acme Company

De Courcelles and G. T. R. Montreal, P.Q.



ALGOMA

STRUCTURAL STEEL – MERCHANT BARS

Blooms, Billets and Slabs
Concrete Reinforcing Bars
Shafting – Pulleys – Hangers
Iron, Brass, Bronze and Steel Castings

Sulphate of Ammonia Nitre Cake
Sulphuric Acid

STEEL RAILS – Open Hearth Quality
Splice Bars Steel Tie Plates
Light Rails – 12 lbs. to 45 lbs.

PIG IRON

Basic Foundry Bessemer Spiegel

ALGOMA STEEL CORPORATION
LIMITED

SAULT STE. MARIE - - - - ONTARIO

MADE IN CANADA

Canadian Hart Wheels

CUT FASTER LAST LONGER

Than any other wheels on the market

Tell us the service you want performed and we will supply you with an abraser that will save you time, money and worry.

Send for one of our catalogues and tell us your troubles. We do the rest. :: :: :: :: ::

CANADIAN HART WHEELS LIMITED

Hamilton :: :: :: Ontario



Eleven Times Around the World

Over 600 miles of Lead-covered Telephone Cable was the output of our plant for one year.

The single telephone wire in this cable amounted to nearly a billion feet or enough to encircle the earth at the Equator more than seven times.

The supremacy of the Northern Electric Company as the largest makers of bare and insulated wires and cables for all purposes has never been questioned.

Northern Electric Company
LIMITED

MONTREAL HALIFAX TORONTO WINNIPEG
REGINA CALGARY VANCOUVER

Unequalled manufacturing and shipping facilities insure prompt deliveries

The Shipping Department is one of the largest and best equipped in Canada. It can accommodate twenty two freight cars

JARDINE
Canadian Giant Power Hammer



There is nothing like it for rapid and accurate production of light to medium forgings.

No. 25 forges up to 2" stock.
1½ Horse Power drives it.
Weight 825 lbs.
Price $171.00.

No. 50 forges up to 2½" stock.
2½ Horse Power required for heavy work.
Weight 1,750 lbs.
Price $275.50.

A. B. JARDINE & CO., Limited

HESPELER - ONTARIO

MUELLER

REDUCING AND REGULATING VALVES

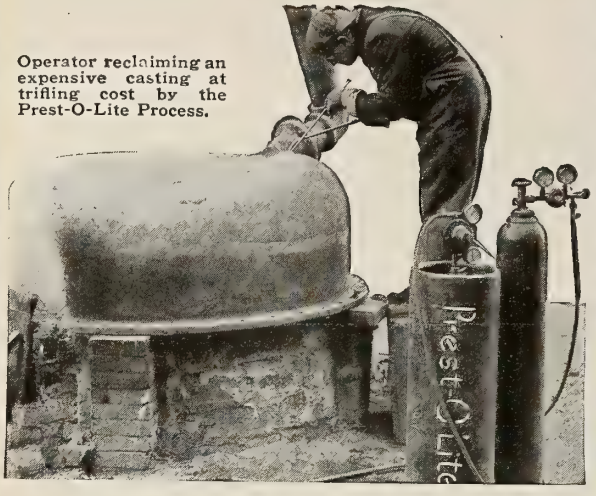
The right kind of valve is one that is adapted to your particular service. Different services under different conditions necessitate different types of valves. Don't guess. Consult us. When *MUELLER* valves are installed under our supervision we fully warrant them to control the service for which they are recommended. We make valves for water, steam, gas, air, oil and ammonia.

Victory Loan, 1918, H. Mueller Mfg. Co. Ltd., first in Canada to exceed quota and receive Honor Flag.

H. Mueller Mfg. Co. Ltd.

SARNIA, CANADA

Oxy-Acetylene Welding and Cutting



Operator reclaiming an expensive casting at trifling cost by the Prest-O-Lite Process.

Meet the Higher Cost of Material by Cutting Out the Scrap Pile.

In practically every line of metal manufacture and repair work oxy-acetylene welding means the conservation of time and material. Its savings are offsetting the increased cost of materials in many great factories.

Hundreds of thousands of dollars' worth of valuable castings, machine parts and tools are being reclaimed from the scrap heap by this process. Not only is oxy-acetylene welding of great value as a manufacturing process but it effects big savings in repair work of all kinds—broken metal parts and castings quickly and inexpensively reclaimed for useful service—in factories, large and small, and in railroad shops, mines and thousands of repair shops.

Prest-O-Lite PROCESS

employs both gases (acetylene and oxygen) in portable cylinders. Prest-O-Lite Dissolved Acetylene is backed by Prest-O-Lite Service, which insures prompt exchange of full cylinders for empty ones. Provides dry, purified gas, insuring better welds, quicker work and lower operating cost.

Apparatus consists of an equal pressure blow pipe, automatic regulators and gauges, and all necessary equipment. Adaptable for oxy-acetylene cutting by the addition of special cutting blow pipe.

Thorough instructions are furnished free to every user of Prest-O-Lite Dissolved Acetylene. Any average workman who understands metals can learn the welding process quickly and easily.

We will gladly send illustrated literature and interesting data showing actual instances of savings made by others. It may suggest valuable ideas to you. Write for it. Address Department C-104.

PREST-O-LITE CO. of Canada, Limited

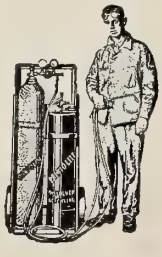
Prest-O-Lite Building

Cor. Elm St. and Centre Avenue

TORONTO

PLANTS AT

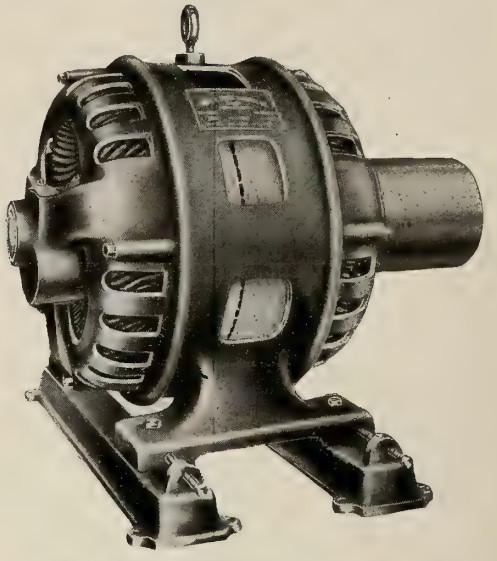
Toronto, Ont. Shawinigan Falls, P.Q.
Merritton, Ont. St. Boniface, Man.



World's Largest Makers of Dissolved Acetylene

Jones & Moore Electric Co. Limited

294-300 Adelaide St. West - TORONTO



ONTARIO REPRESENTATIVES FOR

CENTURY ELECTRIC MOTORS

We make Alternating and D. C. Motors and Generators and

REPAIR ALL KINDS OF ELECTRICAL MACHINERY

LIST OF MOTORS

No.	H.P.	Phase.	Speed.	Volts.	Cycles.	Starter.	Make.
1....	15	3	1500	550	25	Yes	T.H.E.
1....	50	3	750	550	25	Yes	Can. Gen. Elec.
1....	60	3	750	550	25	Yes	Crocker Wheeler
2....	50	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	C.G.E.
1....	10	3	1500	220	25	Yes	T.H.E.
1....	3	3	1500	220	25	Yes	Westinghouse CCL
1....	½	1	1800	110	60	No	Fort Wayne
1....	¼	1	1800	110	60	No	Westinghouse
1....	¼	1	1800	110	60	No	Fisher
1....	40	2	900	220	60	Yes	Fuller Wenstrom
1....	15	2	1800	220	60	No	T.H.E.
2....	5	2 or 3	1800	...	60	No	West. CCL rewound
2....	1	2 or 3	1800	...	60	No	West. CCL rewound
1....	½	2	1800	220	60	No	Westinghouse CCL
2....	10	2 or 3	1200	...	60	No	West. CCL rewound
1....	5	..	1200	220	60	No	Union (New)
2....	3	3	1800	220	60	No	C.G.E. rewound
4....	7½	3	1800	220	60	Yes	Lincoln

TRANSFORMERS

1.... 40 K.W. Type R 2200-220 volts. Packard

PLATER

1.... Type C Ostrander Seymour 6 volt—speed 750—amp. 800

Toronto and Hamilton Electric Co Limited

99-103 McNab St. North, Hamilton

CANADIAN ALLIS-CHALMERS, LIMITED

ENGINEERS - IRON & BRASS FOUNDERS - BOILERMAKERS - SHIPBUILDERS

Vertical, Triple and Compound

Marine Engines

Capacities from 200 I.H.P. to 3,500 I.H.P.

Deck Machinery and Ship Auxiliaries

Condensers

Independent or "Built-in" Types

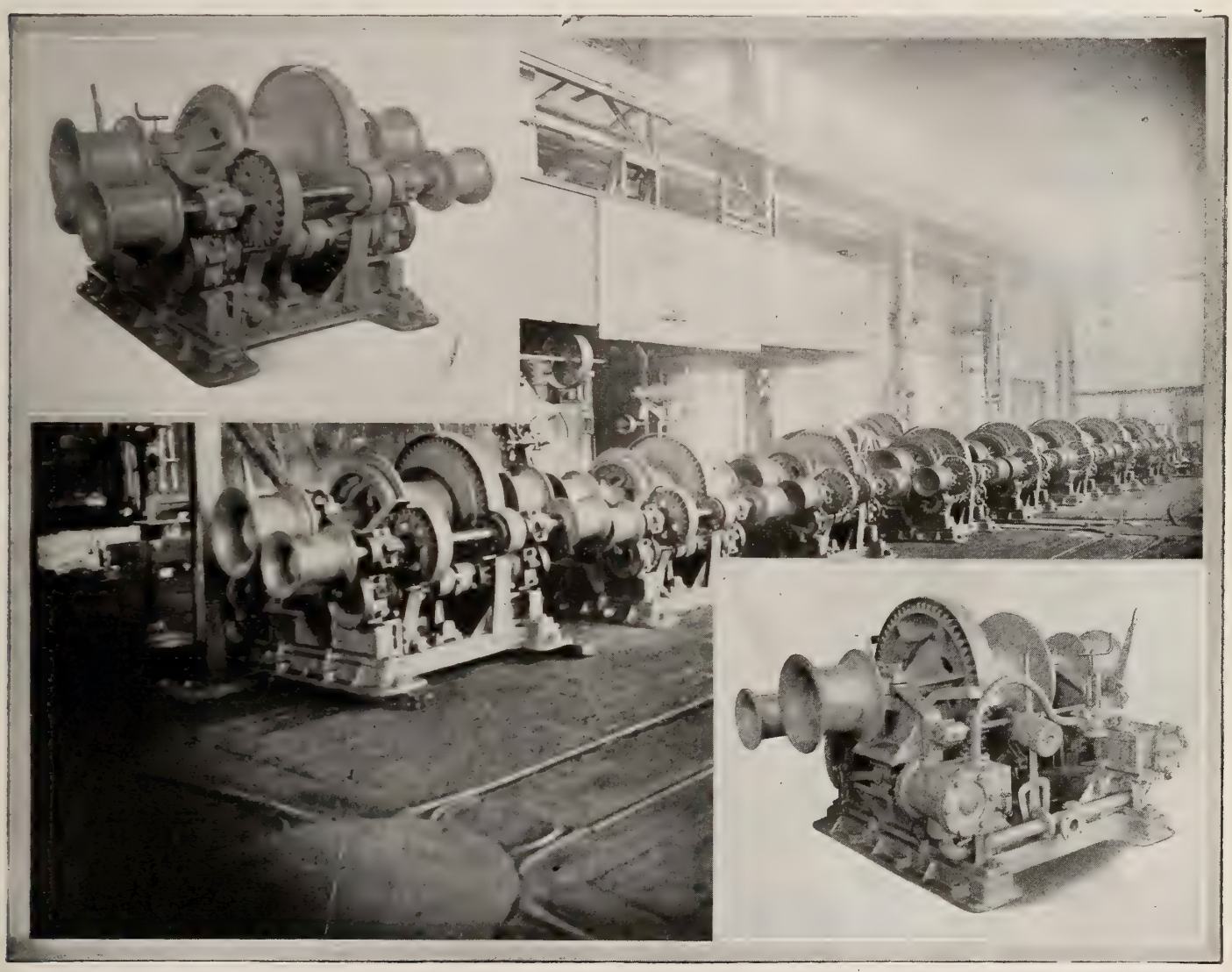
Marine Boilers

"Scotch" or Water Tube, any size, delivered at Tidewater

Steering Engines

Automatic, Combined Hand & Steam & Screw Gear Types with Telemotor

Edwards' Air Pumps **Feed and Bilge Pumps** **Circulating Pumps**



The above cut is a portion of an order for 8¼ x 10 in. Ship Winches assembled ready for shipment.

Designs and Estimates furnished Promptly ***Send us your Specifications***

CANADIAN ALLIS-CHALMERS, LIMITED

HEAD OFFICE, TORONTO, CANADA

Vancouver Office: 1065 Pender Street

Montreal Office: 158 to 162 St. Antoine Street

Halifax Office: 178 Hollis Street

EXTRA POWER BELTING

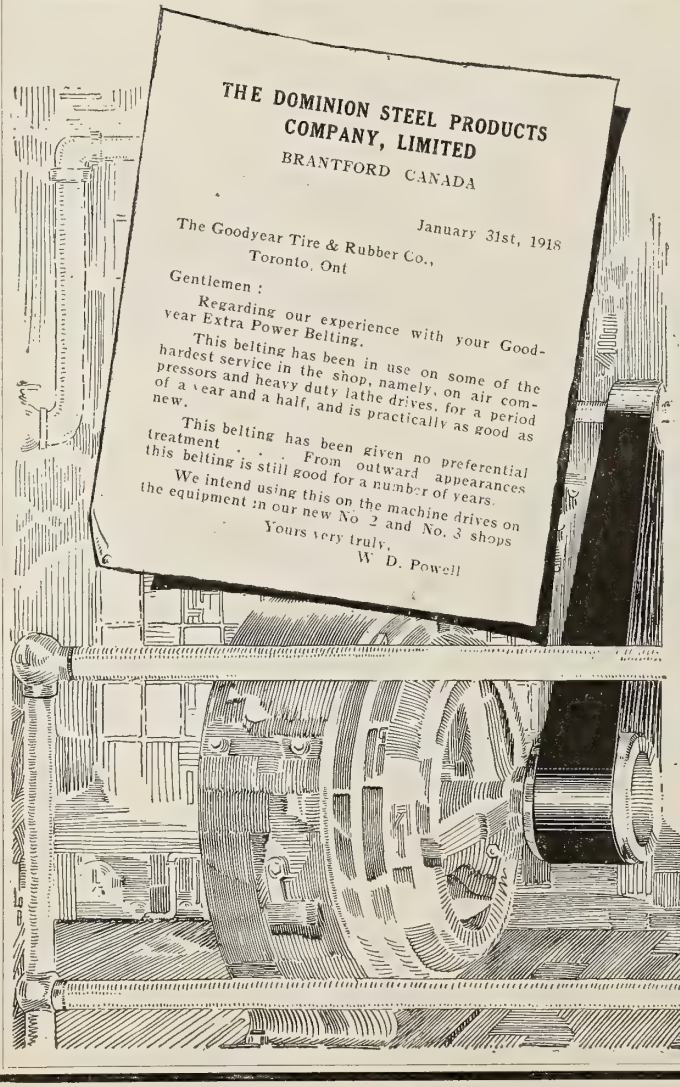
GOODYEAR

MADE IN CANADA

100% Service at a Saving in Cost

The swing to Extra Power Belting in Canadian Industry is unmistakable and rapid. As production demands become more insistent—as executives search more deeply into the means of increased efficiency—the sales of Extra Power Belting become larger and easier.

A dominant factor in the wide-spread knowledge of Extra Power's better transmission is the frank enthusiasm of those who use it. Their enthusiasm prompts them to write us about Extra Power.



The experience of the Dominion Steel Products Company will point the way for other industrials who have war-time belting problems. At first dubious as to quality, they are now Extra Power enthusiasts. They say, "This belting has been in use on some of the hardest service in the shop . . . for a year and a half . . . and is practically as good as new." That the test was unprejudiced is evidenced in their statement: "This belting has been given no preferential treatment." They pay final tribute to Extra Power in the last paragraph of their letter: "We intend using this in our new No. 2 and No. 3 shops."

You, too, can make the savings that Extra Power brings. The savings that come from long life; from pulley-gripping flexibility and friction surface; from absence of stretch; from greater transmitting ability.

There are men in the Goodyear organization who are *belting trained*. Their business is to sell Extra Power only where it will give greater value. A telephone call or letter to the nearest Goodyear branch will bring one of these men to see you.

The Goodyear Tire & Rubber Company of Canada, Limited

Branches: HALIFAX, ST. JOHN, MONTREAL, OTTAWA, TORONTO, HAMILTON, LONDON, WINNIPEG, REGINA, CALGARY, EDMONTON, VANCOUVER

Service Stocks in Smaller Cities



MEET NATIONAL DEMAND WITH MAXIMUM OUTPUT

TEMPORARY shutdowns of engines or dynamos prematurely worn out must not be allowed to hamper the Dominion's effort to set new records in speed and volume of output.

Our line of scientifically-correct lubricants meets the needs of every type of power unit and the whole range of service conditions. It includes the following well and favorably known brands :—

Imperial Lubricants

For Manufacturing, Mining and Milling

CYLINDER OILS

Imperial Capitol Cylinder Oil
Imperial Beaver Cylinder Oil
Imperial Cylinder Oil
Imperial Shield Cylinder Oil
Imperial Ebony Cylinder Oil
Imperial Acme Cylinder Oil
Imperial Disc Cylinder Oil
Imperial Dominion Cylinder Oil

ENGINE OILS

Imperial Atlantic Red Engine Oil
Imperial Bayonne Engine Oil
Imperial Standard Gas Engine Oil
Imperial Kearsarge Engine Oil
Imperial Renown Engine and Dynamo Oil
Imperial Solar Red Engine Oil
Imperial Junior Red Engine Oil
Imperial Eldorado Engine Oil

Smooth-running machinery is long lived. Correct lubrication insures small repair bills, reduced production costs, maximum outputs — bigger profits.

We have a corps of experienced and competent Lubrication Engineers whose advice and counsel is at your service free of any charge or obligation.

Address our Home Office, 56 Church Street, Toronto, or any of our branches.

IMPERIAL OIL LIMITED

Power · Heat · Light · Lubrication

BRANCHES IN ALL CITIES



Canadian Carbide

Made in Canada

SOLD THE WORLD OVER

Second to None in

QUALITY, GAS YIELD
AND PACKAGE

Works:
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Shawinigan Falls
Que.

MANUFACTURED BY

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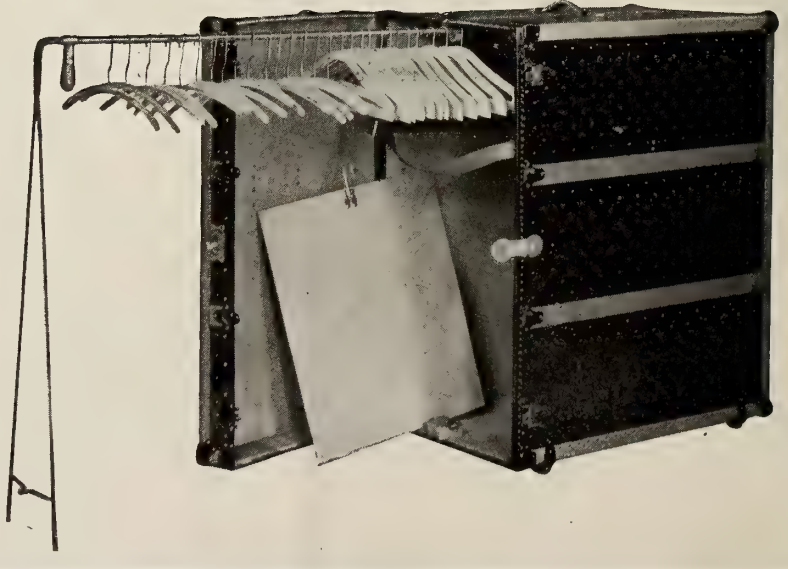
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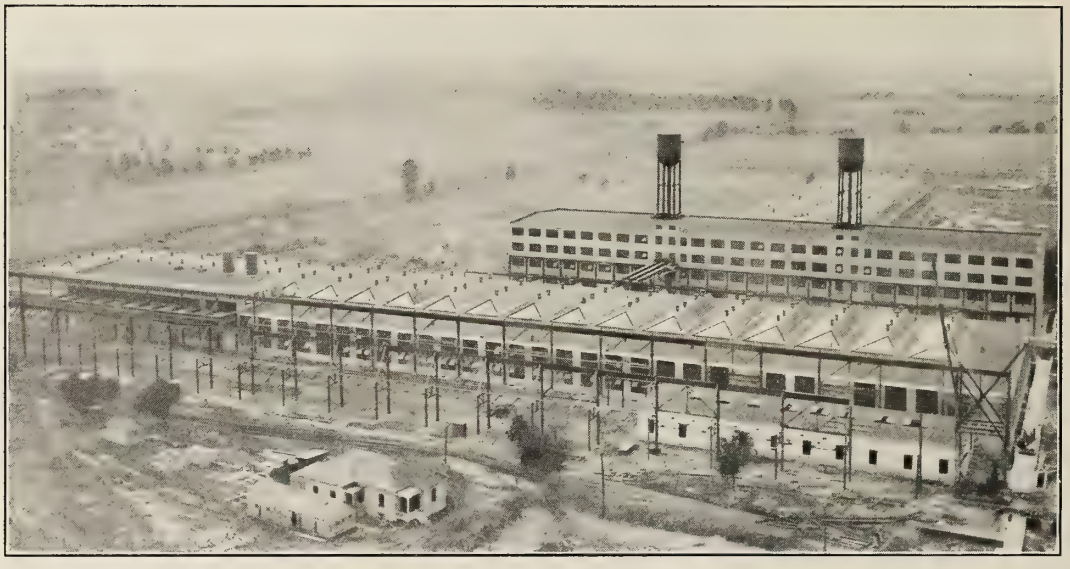
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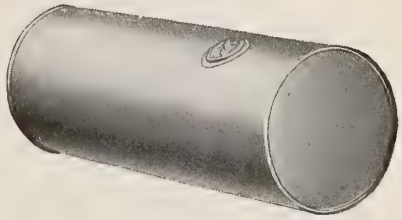
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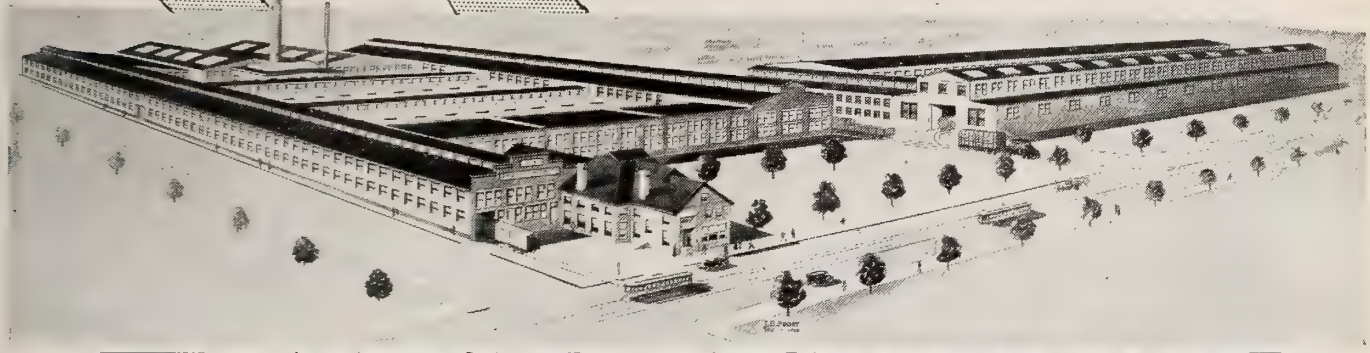
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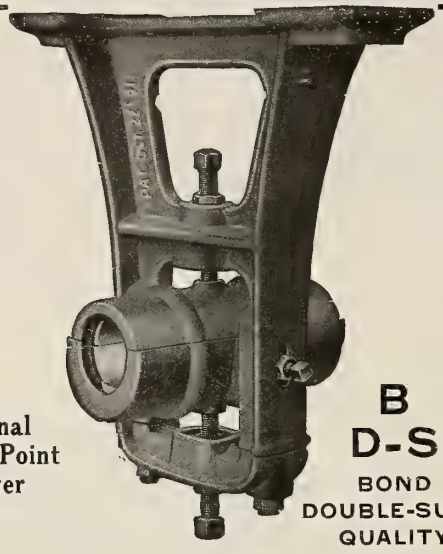
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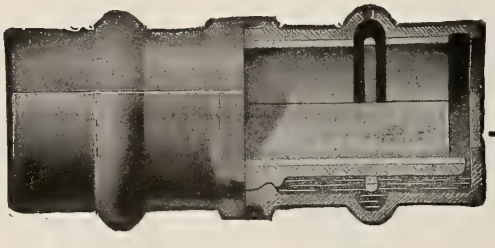
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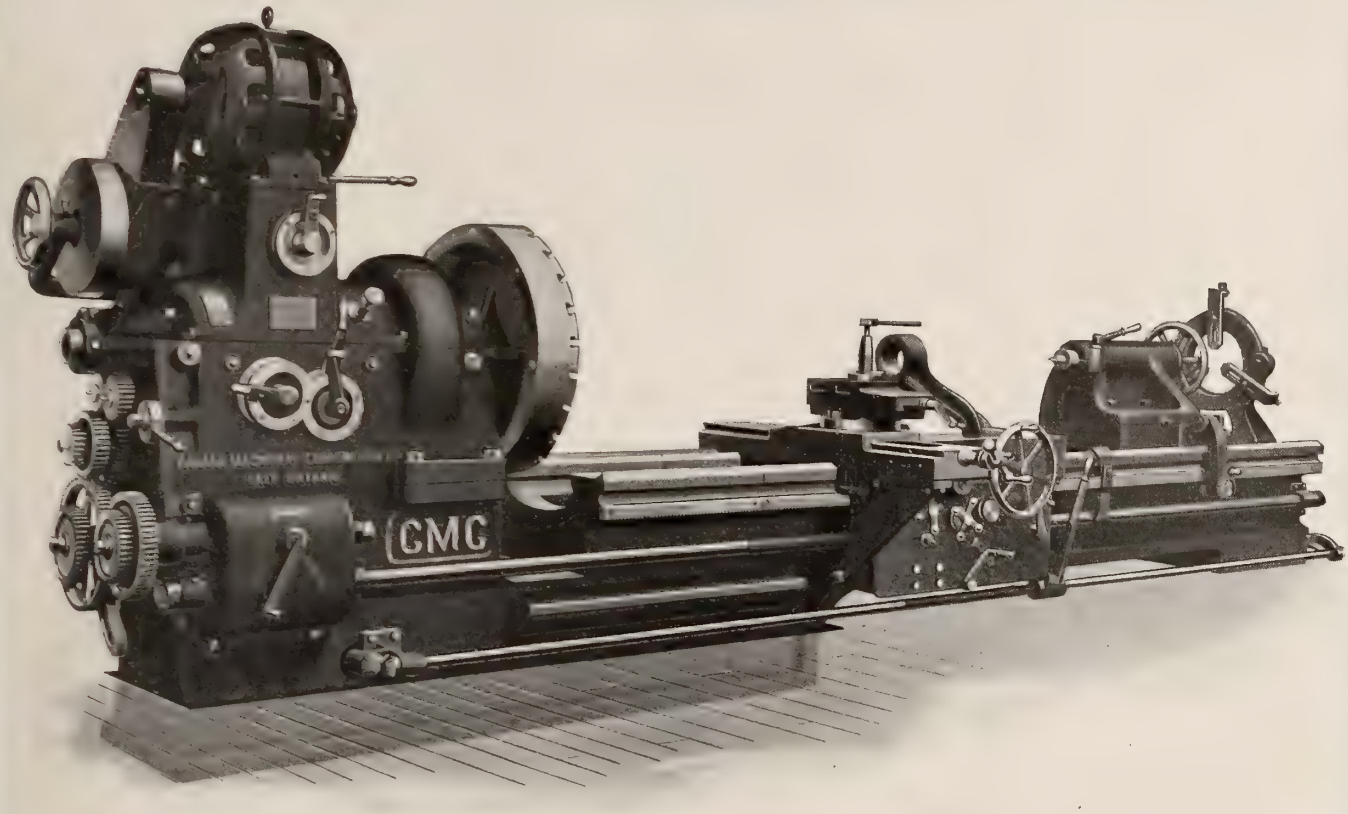
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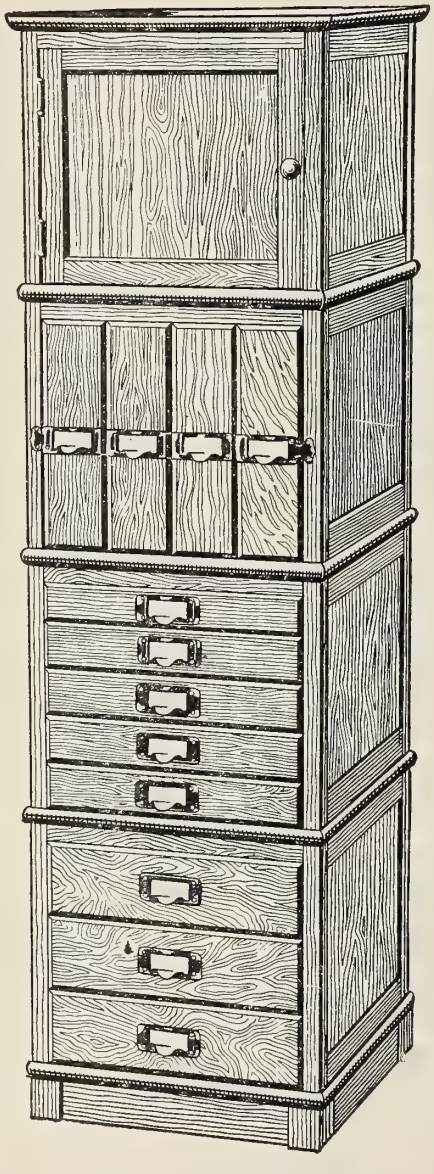
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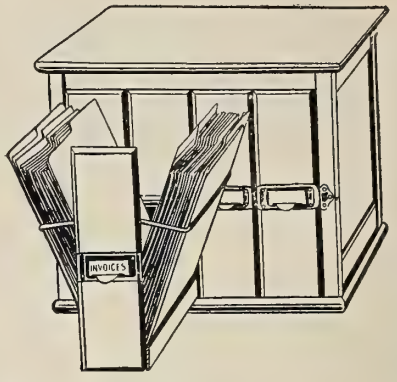
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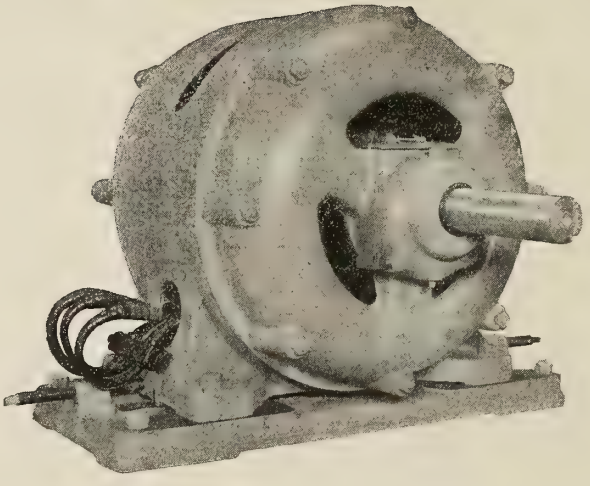
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Whereas, ... and The Barrett Company ...

Whereas ...

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The CANADIAN MANUFACTURERS ASSOCIATION.

INCORPORATED.

Vol. XIX. TORONTO, FEBRUARY, 1919 No. 10

The Association's Position on the Tariff

Statement Prepared, According to the Instructions of the Executive Council in Reply to the Western Grain Growers, and Issued by the General Manager

THE Canadian Manufacturers' Association wishes to state clearly its position with regard to certain demands now being made, especially by the Western Grain Growers, for a radical change in the tariff of Canada.

The chief of these demands are:

(*a*) "An immediate and substantial all-round reduction of the customs tariff, including the removal of all duties on farm and household machinery, lumber, cement, oil and a number of other articles which farmers buy.

(*b*) "Complete free trade between Great Britain and Canada in five years."

(*c*) "The acceptance of the reciprocity treaty with the United States, which was rejected by Canada in 1911.

(*d*) "That any further reduction of the tariff of the United States towards Canada be met by a similar reduction of the Canadian tariff towards the United States." (Presumably free trade with the United States at any time the United States is ready for it).

It is fair to assume that the above resolutions are designed not merely to make slight changes in the tariff, but rather to abolish it entirely, thereby revolutionizing our present fiscal system.

The Canadian Manufacturers' Association urges most strongly that all tariff controversies should be postponed until the country has settled the immense problem of readjustment from war to peace conditions. It is believed that this view is held, not only by the manufacturers and their employees, but also by nearly all the financial and commercial institutions and their employees, by the transportation companies and their employees, and, in addition, by great numbers of farmers who have found a steady market for their produce in factory towns and cities.

Danger of Trade Depression

It is a general and familiar law that, in any country, when fundamental tariff changes are anticipated, trade depression follows. During such periods of uncertainty, investment is curtailed, enterprise is limited, commerce lives from hand to mouth, consumers buy sparingly, and building languishes. Timidity replaces confidence and resolution, and the general attitude may be described as "wait and see."

This is exactly the opposite of what is required to-day. If ever Canada needed courage, initiative, and united effort, now is the time.

The chief problem is: How can this country adjust itself from war to peace?

It is no reflection upon the farmers to recall the fact that only a small percentage of the Canadian army came from the farms, because it is recognized that the chief duty of the farmers during the war was to produce food, a duty which was performed by them with singular courage and success.

Consequently, the bulk of the Canadian army will have to be re-absorbed by commerce, and especially by the manufacturing industries, which must also try to provide work for those of the war workers who really need it.

Yet, at the very time when "Reconstruction" seems to be crystallizing into the hope that the manufacturers will be able to furnish employment, a fiscal policy is advocated, which, if put into effect, would close many factories and reduce the staffs of others.

Employment Must be Provided

How can the commercial interests make plans to provide employment if they fear that the ground may suddenly shift beneath their feet? How can they continue the struggle to maintain and develop an export trade, a course which is being strongly urged upon them, if the Canadian market is suddenly invaded by competitors from other countries?

The possibility of the introduction of anything approaching free trade would create immediate and widespread unemployment. Unemployment breeds social unrest, something which does not require encouragement in Canada at the present time.

During the last fiscal year the total Dominion Government revenue was $260,778,952, of which $116,577,066 was collected by the customs tariff and $45,018,562 by the special war tariff. The total Federal revenue, from all forms of taxation, was only $214,182,156, and of this amount the tariff collected over 75 per cent. In view of the fact that, last year, the tariff provided over sixty-one per cent. of the total revenue of Canada, and over seventy-five per cent. of the total secured by all forms of Federal taxation, it seems reasonable to suggest that we should not throw away this means of securing revenue until we have found something which can be guaranteed to take its place, especially in view of the Dominion Government's announcement that a revenue of $450,000,000 will be re-

quired to meet this year's expenditures, an increase of about $190,000,000 over last year.

If the tariff is abolished, how do the Grain Growers propose to raise this immense revenue? They answer this question by advocating a tax on *unimproved* land, an inheritance tax, and by the extension of the personal income tax and the tax on the profits of corporations—which are now in operation in Canada.

These forms of taxation, however, while capable of producing a certain amount of revenue, though by means of costly and complicated machinery, are so strictly limited by the well known law of diminishing returns, that no country has found it possible to rely solely upon them for revenue. The United States, for example, which under the Democratic regime of President Wilson, increased such taxes, still finds it necessary to retain a protective tariff.

As the future fiscal policies of the great nations will not be determined until after the Peace Conference, Canada would be most unwise to consider any change until the general trend of international tariffs becomes apparent. While it is impossible to forecast what trade policies will survive, the tendencies at present are away from Free Trade, and it seems probable that Great Britain will be forced by her vast obligations to make new customs imposts.

In the manifesto issued to the electors of Great Britain before the general election, signed by Mr. D. Lloyd George and Mr. A. Bonar Law on behalf of the Coalition, it was declared that if the Coalition succeeded in the election "a preference will be given to our colonies upon existing duties and upon any duties which for our own purposes may be subsequently imposed." It was further declared that the British Government would preserve and sustain key industries in the way which experience and examination might prove to be best adapted for the purpose, and that in order to maintain production at the highest limit at home, security would be given against the unfair competition to which British industries might be subjected by "the dumping of goods produced abroad and sold on our market below the actual cost of production."

Both Parties Support Tariff

Since 1878, the national policy of maintaining a customs tariff, which will at the same time raise revenue and provide moderate protection for Canadian industry, including agriculture, has been consistently supported by the greater portion of the population of Canada. Both political parties while in power adhered to it, differing only slightly in regard to the degree of protection which should be maintained. Under this policy Canada progressed so continuously in agriculture, in industry, and in commerce that at the outbreak of war it is doubtful if there existed a nation whose people were more intelligent, more prosperous, or less burdened by taxation. During the war this young nation enlisted an army of over half a million. We clothed them, fed them, paid them, and maintained them and their dependents until their great task was victoriously completed. Such a feat could have been accomplished only by a nation in which all departments of activity were well balanced and equally developed. Farms, factories, commercial institutions, banks, transportation companies, and wage earners have all profited. We have come this distance safely and successfully. Is this then the time to urge the people of Canada to turn off that road which they have travelled in security alike in peace and war on to a new and untried road, the ultimate advantages of which can only be surmised?

As the Canadian tariff has not been revised since 1907, it is not suited in many respects to present conditions, and revision is necessary. But the tariff is most intricate, and, as any change produces far-reaching results, revision should be preceded, if commercial stability is to be maintained, by the most careful study of the chain of industries likely to be affected by each proposed alteration.

Manufacturers' Part in War

The manufacturers of Canada, with the loyal co-operation of their great army of work people, did not fail the country during the war. At its start, industry was threatened with acute depression, but the manufacturers did not hesitate. They mastered the intricate problems of war production, re-organized their staffs, rebuilt their plants, and placed them on a war basis. The result was that towards the close of the war they were employing about 700,000 people at the highest wages ever paid in this country, supplying the needs of Canada, supplying the army, and exporting manufactured goods to the value of $700,000,000 annually. Moreover, Canadian factories rapidly attained such a high degree of efficiency in war manufacturing that they were able to execute orders placed by the Imperial Munitions Board in Canada to the extent of $1,200,000,000, and also to accept over 250 contracts given by the United States ordnance manufacturers for the production of shells and component parts. Vast sums of money were thus brought into Canada, and, being distributed and spent in all parts of the country, filtered through all commercial channels and benefited all classes of the population. It is disagreeable to speculate as to what our financial situation would have been now had Canada not possessed the ability, the enterprise, the factories, and the skilled workmen necessary to achieve this result. It is more disagreeable to speculate how many days longer the war might have been protracted but for the important part Canadian factory production played in furnishing the munitions and equipment so vital for success.

The manufacturers who transformed Canadian industry from peace to war are not afraid of the task of transforming it back again from war to peace, but they ask for liberty to devote their entire energy to its accomplishment.

Therefore, the Canadian Manufacturers' Association believes that the country should concentrate on the one task of returning to peace conditions, with all its attendant questions, and leave the highly controversial problem of tariff revision to a time when it can be given the undivided attention it demands.

Effect of the Tariff Statement

The foregoing statement on the tariff authorized by the Executive Council in reply to the Western Grain Growers' demands for tariff reduction seems to have been well received, on the whole, throughout the country. It was reproduced in most of the large newspapers and excited considerable editorial comment. Probably the bulk of opinion seems to support the view that we have enough troubles on our hands at the present, without throwing the tariff controversy into the coming session of Parliament. The protection, which practically amounts to prohibition of imports into Great Britain, recently given to British industry, has greatly strengthened this view.



Pulp and Paper Manufacturers Lunch Together

There was a splendid attendance at this year's annual convention of the Pulp and Paper Manufacturers' Association, held in Montreal on January 30 and 31, and the meeting passed off most successfully

Editorial Comment

Colonel Carnegie's Address

THE address delivered by Colonel Carnegie at the Toronto Branch of the Canadian Manufacturers' Association in the latter part of January, was a most able review of the Canadian and international situation in regard to the iron and steel industries. This address is published in full elsewhere in this issue and arrangements have been made to reprint it in pamphlet form. Copies will be forwarded on request.

Soldiers and Bolshevism

THERE are very few Bolshevists amongst Canadian soldiers. The great majority want to get back, as quickly as possible, into employment which they are able to perform. The strongest allies which the conservative elements of the population of Canada have are the soldiers. So long as they are on the side of law and order, no Bolsheviki revolution could raise its head in Canada for a moment.

The Six-Hour Day

THE six-hour day is advocated by a few labor men. Some years ago a ten-hour day was general. It was supplanted by the nine-hour day. Then came the agitation for the eight-hour day, which was largely successful. The advocates of the six-hour day take two steps at once. Here and there, a voice is heard urging that a five-hour day be adopted. It is obvious that the minimum is being rapidly approached. These demands for shorter hours are prefaced by the stipulation that wages must not be reduced. It is immediately apparent that such a policy has the effect of enormously increasing wages, one of the principal elements in the cost of production. At the same time output is decreased. As a result, the price of the finished product must rise. If it rises beyond a certain point, the goods of Canadian manufacturers cannot be sold in competition with goods of foreign countries. Factory production will dwindle, which will mean less work.

Thus, if pressed too far, the double demand for shorter hours and higher wages acts as a boomerang, which injures the workman instead of helping him.

Mr. Rockefeller's Industrial Creed

ATTENTION is directed to the Industrial Creed of Mr. John D. Rockefeller, Jr., which is published elsewhere in this issue. Through the establishment of the Rockefeller Foundation, Mr. Rockefeller has used his father's great wealth for scientific philanthropy. He has made a close study of the industrial problems presented in numerous companies, with which he is connected, and it is certain that he has done much to improve relations between employers and employees.

Public Works and Unemployment

IT is confidently expected that the Government will begin an extensive building programme soon.

Canada is five years behind in peace construction. There is too great a tendency to unload all the burden of finding employment for demobilized soldiers and war-workers on the shoulders of manufacturers. They can do a great deal and are doing a great deal, but they can't do it all. Provincial Governments should begin construction on public works immediately. Municipalities have not yet announced any extensive programme. About twelve weeks have elapsed since the signing of the armistice, and very little building has been started. Banks, loan companies

and governments seem to be holding back, waiting probably for prices to drop. Prices cannot drop very much unless wages and the cost of living drop with them. To defer building programmes is unpatriotic in the present crisis. The Repatriation Committee announces that great construction programmes will soon be started in connection with Government works, railways, shipbuilding, housing, land settlement and road building. This is good news, but the country wants action.

The Whitley Report

CONSIDERABLE attention has been drawn to the report of the Whitley Committee in England. This report provides for Joint Councils, at which representatives of both the manufacturers and the employees engaged in an industry meet to discuss all questions affecting the industry. Certain firms in the United States have independently adopted a similar policy. The present trend of opinion seems to be that labor should have a voice in the management of industry. How far that is to go the future will determine.

The financial question, as usual, will be the difficult point. Employees are naturally ready to share the profits of a concern, but they are not so willing to take responsibility for its losses. At least that has been the record of profit-sharing enterprises.

Manufacturers and Soldiers

AS the majority of the soldiers of the C.E.F. were employed in factories previous to enlistment, it is only natural that manufacturers would exhibit the greatest concern for their welfare, not only when they are in the army but also after their discharge.

During the period of service, the positions of the majority have been safeguarded and in many cases part of their wages has been paid them or their dependents. The policy of the manufacturers has been to provide positions, not only for members of their own staff, who have been on service, but also to give priority when possible to other returned soldiers. There has also been a close co-operation between the representatives of the manufacturing interests and the officials of the Great War Veterans' Association. For example, a joint meeting was held in Toronto on January 31st, at which the following were represented: The G. O. C., M.D. No. 2; officials of the G.W.V.A., and representatives of the manufacturers of Toronto. As a result of this meeting, these three bodies are working in closest harmony, so far as Toronto is concerned, for the purpose of securing positions for returned soldiers in the factories.

A sore point with the soldier has always been the employment of aliens, of whom there are two classes—enemy and friendly. While the war was on, and labor was scarce, manufacturers considered it to be good policy to employ Austrians and Germans in making munitions which would be used against their own countrymen. As friendly aliens were exempt from the Military Service Act, they were also employed to increase the output of munitions of war. Prior to the signing of the armistice, soldiers who were available were largely convalescents or men in low medical categories, and who were unfortunately unfit to perform the heavy manual labor on which aliens have been employed. With the signing of the armistice, the situation changed and since that date manufacturers generally have been able to extend the policy of replacing aliens, wherever soldiers were able and willing to take their positions. This is the only policy that could be adopted.

The Work of the Imperial Munitions Board

THE general public scarcely realizes yet how striking has been the success of the Imperial Munitions Board in Canada. The Board was organized during the first week in December, 1915, and is still in operation.

It placed orders in Canada to the amount of $1,200,000,000. This vast sum passed into general circulation through all the ordinary channels and benefited all classes of the population. The expenditure was not concentrated in two or three large industrial centres; the following shows the Board's expenditures in three of the chief manufacturing cities:

Montreal	$171,693,197 97
Toronto	162,107,347 89
Hamilton	69,400,000 00

The remainder, or about $800,000,000, was spent in the remaining industrial cities, towns and villages of Canada.

At the peak of operations the Board was employing between 250,000 and 275,000 workmen and workwomen. In addition to its chief duty as representing the Ministry of Munitions of Great Britain, the Board has acted as purchasing agent in Canada for the British Admiralty, the British Timber Controller, the British Air Ministry, the British War Office and the British Ministry of Shipping.

The munitions produced, in part, represent the following:

Steel Forgings	75,000,000
Shells	68,300,000

In the production of these shells upwards of 2,100,000 tons of steel have been used, of which 1,600,000 tons were produced in Canada.

Seventy-three million six hundred thousand copper bands were used in shell production, of which 23,000,000 were produced in Canada; 29,000,000 fuses were used, of which 19,000,000 were produced in Canada; 81,000,000 pounds of powder and 75,000,000 pounds of high explosives were produced in Canada.

The shipbuilding programme of the Board included contracts for the production of an aggregate dead weight tonnage of 340,000 tons, having an aggregate value of $64,500,000. Sixty-four wooden ships and 44 steel ships have been built or are under construction or under contract.

Three thousand aeroplanes were constructed, and an important percentage of the spruce required by Great

Britain for aeroplanes was supplied by Canada through the Aeronautic Department of the Board. Seven national plants, costing $16,000,000, were constructed and operated. Upwards of $20,000,000 was expended on the equipment and maintenance of the Royal Air Force and airdromes at six different encampments.

In the report issued by the War Cabinet for the year ending 1917, and presented to the Imperial Government, there occurred the following paragraph:

"The manufacturing resources of Canada have been mobilized for war production almost as completely as those of the British Isles."

In addition to the above, 250 contracts were given by the United States Ordnance Department through the Imperial Munitions Board, to Canadian manufacturers for the production of shells and component parts.

The Board hopes to wind up its immense operations by the middle of February, 1919. In a statement to INDUSTRIAL CANADA, Sir Joseph Flavelle, Chairman of the Board, says:

"I am hoping that practically the entire body of British business, including the claims, will be completed by the middle of February. A few straggling claims may still have to be met after that date, but if so, the number will be unimportant."

In reference to the adjustment of contracts for munitions given by the United States Government to Canadian manufacturers, Sir Joseph Flavelle says:

"Manufacturers are now preparing their claims, which, subsequently, will be verified and I hope that if all co-operate together adjustment will be reached which will be mutually satisfactory. There are, in all, some 250 contracts, involving an immense detail of machinery, equipment and material, which nothing but time will overtake. In the nature of the case there cannot be the same freedom of action in the adjustment of the American accounts as in the British. Final authority rests with the Board in the British settlement: we can choose our own methods and plans for making the adjustment, whereas in the business for the United States, of necessity, we must be largely governed by the regulations and requirements laid down by the United States authorities. The Board has voluntarily assumed this obligation in the hope of being of service to both the United States Government and the manufacturers of Canada in securing a more speedy settlement of these contracts than might otherwise be possible. It is important from every standpoint that the great number of manufacturing companies, whose capital and equipment have been involved in the production of munitions, both for British and United States account, should have their claims adjusted as rapidly as possible so as to leave them free to use their plants and capital for after-war business. It is the desire of the officers of the Board to facilitate in every way this desirable object. It must be recognized, however, that the mass of detail which must be inseparable from these settlements will take time, no matter how dilligent all concerned may be."

While no doubt many people contributed to the success of this vast undertaking, great credit is due to the chairman, Sir Joseph Flavelle. Thousands of hands were employed, but in the last analysis, success of the enterprise depended upon the decisions of a few executive brains, which, fortunately for Canada, were not lacking in the crisis.



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The Bolsheviki in Real Life

One of the few existing photographs of the leaders in Russia among the Bolshevik party and the first to reach Canada

News and Views of the Association

There will be found each month in this department a record of the various activities of the Canadian Manufacturers Association during the preceding month. The information is supplied to INDUSTRIAL CANADA officially, and all members of the Association are urged to acquire the habit of reading and checking over the contents of the department carefully in order to keep themselves posted on the work of the Association

Executive Council Meeting

A largely-attended meeting of the Executive Council was held in Ottawa, on January 17, the president, W. J. Bulman, of Winnipeg, presiding. In connection with the meeting a luncheon took place at the Chateau Laurier, at which addresses were delivered by Hon. A. K. McLean, acting Minister of Trade and Commerce; Mr. Hubbard, British Trade Commissioner to Russia, and H. J. Daly, Director-General of Repatriation.

Annual Meeting at Toronto

Among the matters settled at the Executive Council meeting last month was the place for holding the annual meeting of the Association. It was decided that this should take place this year at Toronto, the date to be settled later by the Council.

Set Dates for Meetings

At the last meeting of the Executive Council the general rule was adopted that the Council should meet on the last Thursday of each month, and that all committees reporting to the Executive Council should hold their meetings in the first half of each month, so that reports could be mailed to members of the Council at least ten days before each meeting. The next meeting of the Council will be held in Toronto on Thursday, February 27, and the following one will probably be held in Montreal on Thursday, March 27.

Chairman, Saskatoon Section

At a meeting of the Saskatoon Section of the Prairie Provinces Branch, held on January 10, Mr. F. M. Beatty, manager of Cushing Bros., Limited, who acted as honorary secretary of the section for over two years, was elected chairman of the section. Mr. R. H. Winton, manager of the Metal Shingle & Siding Co., was elected honorary secretary.

Shoe Manufacturers' Section Forming

The boot and shoe manufacturers of Canada have undergone further organization, and if the project is successfully carried out, as no doubt it will be, all the manufacturers in the country will have an organization to which they can look for the establishment of good trade practices and for constructive co-operative ideas.

The new Association, which is applying for permission to organize as a section of the Canadian Manufacturers' Association, is known as the Shoe Manufacturers' Association of Canada. Mr. F. S. Scott, of Getty & Scott, Limited, Galt, Ontario, is the President, Mr. Joseph Daoust, of Daoust, Lalonde & Company, is Vice-President, and Mr. J. D. Palmer, Hartt Boot and Shoe Co., Limited, Fredericton, N.B., is Second Vice-President. The Executive Committee comprises one member for every five manufacturers in the different geographical groups. Details are new being settled as to office arrangements and the appointment of a secretary-treasurer, one of whose qualifications must be the ability to speak both French and English.

Groups After Export Orders

The manufacturers of stoves have undertaken a group representation for European business on a basis somewhat similar to that on which the garment workers are operating, and before this number reaches its readers Mr. A. M. Smith, of the McClary Manufacturing Company, London, Ontario, will be on his way to get business for Canadian stove manufacturers. The manufacturers of utensils have associated themselves with the stove manufacturers in this enterprise.

Similar work is being accomplished by the manufacturers of hand farm tools, axes, hammers, etc., and the manufacturers of boilers and engines are also interesting themselves in the project.

Other groups will be organized as their interests appear to warrant, and besides this many individual manufacturers are sending over special representatives to look after their individual interest.

Garment Makers After Export Orders

Garment manufacturers of Canada have taken active steps to secure a share of reconstruction business in Europe. The initial steps in organizing for this business were taken by the Canadian Manufacturers' Association, who called together representative manufacturers, and the work is now being carried on by the Garment Makers' Association of Canada, of which Mr. H. B. Peabody is the President and Mr. J. A. Haugh is Secretary. One representative went overseas late in December and two others will be chosen almost immediately to proceed to Great Britain within the next week to act in conjunction with the Canadian Trade Mission in London, of which Mr. Lloyd Harris is the executive head.

The garment manufacturers' organization consists of 42 producing entities in all sections of Canada, and represents about 75 per cent. of the entire Canadian industry.

Representatives have been in consultation with the Trade Commission at Ottawa within the last few days, and a conference was subsequently held in Montreal.

The idea has been to manufacture garments having a maximum wearing capacity at a minimum cost. The aim of the manufacturers is to secure business to keep the wheels of industry turning, to keep organizations intact and to keep labor employed. Their other duty is to facilitate rapid reconstruction in Europe by clothing and

providing for other urgent requirements in the countries that have suffered most through the war. These orders, when secured, are expected to keep the garment making industry operating while the retailers gain confidence in the stability of prices.

There will be a comparatively small margin of profit on reconstruction business. The manufacturers have made their estimates and prepared their samples with this in view.

Group Insurance

At a meeting of the Insurance Committee, held on the 4th of February, the question of the advisability of legalizing the transaction of industrial group insurance in Canada was discussed. This class of insurance has attained considerable popularity in the United States and has been eminently successful in its results. There are many firms in Canada who are anxious to provide some such protection for their employees, but, under the Dominion Insurance Act, this class of insurance cannot be transacted by licensed companies. While it is not expressly referred to in the Insurance Act, it is practically prohibited under a section which provides that a life insurance company shall not discriminate in rates or benefits between individuals of the same class. The essential factor of group insurance is, of course, that it can be transacted at a much lower cost than is incurred on individual policies, and this would constitute discrimination within the meaning of the law.

In September, 1917, the C.M.A. Insurance Department approached Mr. G. D. Finlayson, the Superintendent of Insurance, with the object, if possible, of removing the disability from the Insurance Act. Mr. Finlayson replied that, on two occasions, his Department recommended a provision expressly authorizing the transaction of this class of business. On each occasion, however, the proposal met with most pronounced opposition from fraternal societies and from labor organizations and the amendment was not adopted. The Superintendent of Insurance very naturally considered that the first step to be attained was the removal of opposition on the part of those for whose benefit the scheme is supposedly designed, that is, the employees. The opposition of the fraternal societies is, of course, easily understood, although it seems hardly reasonable that they should be allowed to stand in the way of what is beyond question a scheme of great advantage to industrial workmen. The reason for the objection of the labor organizations is, perhaps, not very difficult to find, but it would be interesting to learn what arguments they bring to support their opposition. The Insurance Committee recommended that the Association should get into touch with the trade union officials and endeavor to arrive at an understanding on the subject.



—B. and O. Press Photo

The Late Col. W. K. McNaught, C.M.G.

In the death of Col. McNaught, which took place in Toronto on February 2, the Canadian Manufacturers Association has lost an old and valued member. A man of wide and varied activities —political, social, industrial, literary, military and athletic—he brought to all the undertakings with which he was associated, a knowledge, wisdom, energy and resource that marked him out as a leader among men. To the Canadian Manufacturers Association he gave of his best, as an ordinary member, a member of committees, a chairman and eventually as president, an office which he held from 1896 to 1898. His was a sane mind and his counsels invariably worked to the best advantage of the Association. The membership generally have learned of his death with sincere regret.

A New Board

Pursuant to a request from Hon. G. D. Robertson, Minister of Labor, the Executive Council at its last meeting nominated as representatives of the Association on the new Employment Service Council of Canada, Mr. G. M. Murray, Ottawa representative of the Association, and Mr. G. E. Carpenter, secretary of the Prairie Provinces Branch. Mr. Murray will be the representative for Eastern Canada and Mr. Carpenter for Western Canada.

The Employment Service Council of Canada is appointed under the terms of the Employment Offices Co-ordination Act, as agreed upon at the conference of employment officials held in Ottawa, November 19 to 23, 1918. Each province will have a representative on the Council, and there is provision for two representatives each from the Canadian Manufacturers Association; the Trades and Labor Congress and the Canadian Council of Agriculture, with one member each from the Railway War Board; the Railway Brotherhoods; the Returned Soldiers and the Soldiers' Civil Reestablishment Department. The Department of Labor has the choice of three members, two of whom shall be women.

The Employment Service Council is an advisory body, which will advise the Minister of Labor as to the policy which should be adopted in the operation of the Dominion-Provincial Employment Service recently establishment. The Council will not likely meet more frequently than twice each year.

Lyons Fair

Nearly seventy Canadian manufacturers will have exhibits at the Sample Fair to be held at Lyons, France, March 1st to 15th. The shipments were all assembled at St. John, and went forward about Jan. 22nd. All told

they occupied 30,000 cubic feet of cargo space. Included in the shipment were samples of paints, varnishes, wallpaper, wax-paper, leather, furniture, cottons, wood-working machinery, concrete mixers, abrasive wheels, wire rope, steel goods, electrical apparatus and appliances, canned fruits and vegetables, condensed milk, flooring and interior trim, stoves, plumbing supplies, garden tools, tinware, sheet metal building material, ready-cut houses, etc., etc. Most of the firms exhibiting will have their own direct representatives on the ground, while some will be represented by selling agencies. The Association will be officially represented by Mr. C. Howard Smith, chairman of the Montreal Branch, and Mr. W. P. Hughes, secretary in charge of the Montreal office.

Service of Commercial Intelligence Department

Some idea of the services which the Commercial Intelligence Department is in a position to extend to members may be gathered from the following paragraph, taken from the January report of the Department to the General Manager:—

"The Department gave information to numerous members in connection with the development of ordinary export business. The following are simply instances showing the widespread character of this work: An Alberta member was assisted in disposing of mine car wheels in Japan. An Ontario member was put in touch with people who might dispose of mechanical stokers for him in England. A Winnipeg firm was put in communication with several merchants in South Africa, Australia and New Zealand. An Ontario manufacturer of fountain supplies was given information about the market for his goods in Australia. A flour mill was put in touch with an importer of flour and corn meal in the Dutch West Indies who desired regular supplies. Manufacturers of nails, flour and pulp and paper felts were put in touch with direct enquiries from Mexico. Enquiries of a trade nature from members and others, amounting to about 250, were answered by mail or over the telephone. In conjunction with the British Columbia Secretary, the Department assisted Canadian manufacturers of cars in tendering on a Chinese order for which a credit of $600,000 has been established."

As stated, these are simply instances, but they go to show how important and valuable are the services being rendered. In addition, interviews and information were given to several manufacturers considering locations in Canada.

Ontario Boiler Inspection

In order to direct special attention to new regulations in connection with the inspection of boilers, the Insurance Committee has issued a circular to the Ontario membership, reading as follows:—

"An amendment to the Ontario Factory, Shop and Office Building Act provides that: No boiler in a factory, shop, bakeshop or office building or in any other building on any other premises or in any other place shall be operated or used unless the same is insured in some boiler insurance company registered in the Department of Insurance or has been inspected within one year by some person authorized in writing by the Superintendent of the Trades and Labour Branch.

"This means that every uninsured boiler must be inspected annually by a Government inspector to whom a fee will be payable. The only exclusions are boilers in private dwellings (not apartment houses) and boilers used for farm or agricultural purposes.

"The definition of the word "boiler" has been widened to include—"Any vessel or other appliance in which steam, gas, air or liquid is contained under pressure and all pipes, apparatus and machinery attached to, or connected with a steam boiler."

"Hereafter, therefore, pressure tanks, jacketted heaters, laundry machines, digesters, economizers, air tanks, rendering tanks, steam kettles, vulcanizing tanks, steam tables and steam pipes and cylinders must be inspected annually by a Government Inspector or insured in a registered boiler insurance company.

"The Association maintain an Insurance Department, under the management of Messrs. Willis, Faber & Co., Limited, for the purpose of giving advice and assistance on all insurance matters without charge to members."

The wording of the amendment quoted above does not appear to have been carefully considered. As it reads at present, any vessel or other appliance in which steam, gas, air or liquid is contained under pressure, must either be insured by a boiler insurance company or inspected annually by a duly authorized inspector. The list of appliances mentioned in the circular distributed by the C.M.A. is, of course, by no means complete. As one indignant member remarked, no mention is made of automobile tires. Sprinkler equipments were also overlooked, although, since they contain liquid under pressure, they undoubtedly come within the scope of the Act, and should either be insured or inspected. We believe that the Government Department has stated that there is no intention to interpret the Act severely; but it would be far better if some closer definition of what the amendment really means could be arrived at. It should not be necessary for each individual manufacturer to remain in doubt as to whether he is or is not affected, and an amendment of the amendment seems to be called for. Manufacturers who have any doubts on the subject might do well to write to the Chief Inspector of Factories, Ontario Parliament Building, Toronto, describing conditions and asking his advice.

Ontario Shoe Manufacturers

The annual meeting of the Ontario Shoe Manufacturers' Association was held in Hamilton in the Royal Connaught, Wednesday, Jan. 15. The chief features of the meetings were the addresses of Dr. W. A. Riddell, Superintendent, Ontario Trades and Labor Branch, on "Industrial Relations," and Mr. Fryer, the Deputy Vocational Officer for Ontario, on "The Vocational Training of Returned Soldiers."

The retiring chairman, Mr. A. Brandon, of the Brandon Shoe Co., Limited, Brantford, delivered an address reviewing the year's work and conveying a cheerful message for the future.

A serious effort has been made recently to get manufacturers to adopt standard sizes of cartons for shoes. A special committee put in a good deal of hard work on the question and presented a schedule of sizes for cartons suitable for all classes of shoes.

There are strong hopes of having this schedule generally adopted. It is anticipated that this will benefit the carton makers by enabling them to order standard-sized boards which they can cut to the best advantage. It will simplify the packing problem and lead to a standardization of packing cases and containers, while the retailers' shelves will also present a more uniform and attractive appearance when the new system is installed.

Resolutions strongly supporting the movement for more and better technical education, and urging that the Workmen's Compensation Board make their rules with regard to non-contributors more severe were carried.

The annual elections resulted in the following officers and directors being returned for the ensuing year:

Chairman—G. W. McFarland, Williams Shoe, Ltd., Brampton, Ont.

Vice-Chairman—C. E. Hurlbut, Hurlbut Co., Ltd., Preston, Ont.

Directors—J. A. Dunbar, Scott-Chamberlain, Ltd., London, Ont.; F. H. Ahrens, C. A. Ahrens, Ltd., Kitchener, Ont.; J. A.

Walker, Walker, Parker Co., Ltd., Toronto, Ont.; G. H. Ansley, Perth Shoe Co., Ltd., Perth, Ont.; G. W. Charles, Canadian Consolidated Felt Co., Ltd., Kitchener, Ont.

Secretary-Treasurer—Alex. Marshall, Canadian Manufacturers Association, Toronto, Ont.

It was decided to hold the next quarterly meeting on Wednesday, April 9th, in Kitchener, when a number of subjects that have not previously been touched will be taken up, including such important matters as negotiating with manufacturers of shoe making supplies to maintain high standard of materials, improving relations between employers and workmen, and devising methods of reducing the cost of production.

The function took a social turn in the form of an informal dinner at the Royal Connaught, where the manufacturers renewed old acquaintanceship and further strengthened their ideas of co-operation.

Maritime Branch Resolution

Mr. W. S. Fisher, of St. John, chairman of the Maritime Branch of the Association, brought to the attention of the Executive Council at its January meeting a list of seven very important resolutions passed at a meeting of the Maritime Branch held on December 11. These resolutions were considered of great importance, and further action will be taken on them by the Executive Committee. They were as follows:

Whereas, the future lies with that nation which best organizes and utilizes its national resources in men and materials.

Therefore, be it resolved that it is the opinion of the Maritime Branch, in convention assembled, that the Canadian Manufacturers Association should consider and, if found desirable, should take prompt and effective measures to promote the following objects.

(1) The maintenance of industrial stability, development of natural resources and the great advantages of carrying the manufacture of raw material to the last processes in Canada.

(2) Commercial representation of Canada in Europe to secure for Canadian industries a partnership in the restoration of the ravaged countries, and an organization in Canada resembling the Imperial Munitions Board to place reconstruction orders.

(3) Co-operation between employers and employed, between East and West, and between field and factory in a common national policy that will develop alike agriculture and industry, keep Canadians at home, attract immigration and make Canada more self-reliant and more capable of carrying its war burden.

(4) Organization of kindred industries for standardization and sub-division which constitutes under present conditions the only wise system of organization, and through which profits are increased, wages improved and prices to the public reduced.

(5) The necessity for a National Research Institute at Ottawa resembling the Bureau of Standards at Washington, better post-graduate facilities in the universities for scientific research, and organization of the industries for investigation of common research problems.

(6) Co-operation by the Government in a better organization of the fisheries and the best facilities for shipment throughout Canada and to foreign markets.

(7) Immediate action by the Dominion and Provincial Governments to provide ample housing accommodation against the return of the soldiers and to set afoot necessary projects of municipal improvement and necessary provincial and national undertakings.

Further resolved, that a copy of this resolution be sent to the Executive Council for its consideration.

Ottawa Office Opened

The Ottawa office of the Association, in charge of Mr. G. M. Murray, has now been opened. It is located in Room 216, Booth Building. More detailed information as to the services to be rendered by this office will be furnished later.

Recent Activities of the Toronto Branch

By H. MACDONALD
Secretary, Toronto Branch

JANUARY proved a busy month for the Toronto Branch. The problems of employment loomed large and active steps were taken to cope with a situation which has been growing increasingly serious with the return to civil life of so many returned soldiers. The Branch has also held several special meetings, at which addresses were delivered by such noted speakers as Peter Wright, Captain Carpenter, V.C., Principal Bruce Taylor and Col. Carnegie. The addresses of Peter Wright and Col. Carnegie are published elsewhere in this issue of INDUSTRIAL CANADA.

Co-operation with G.W.V.A.

Representatives of the Association and the presidents and secretaries of every branch of the Great War Veterans' Association in Toronto met on the afternoon of January 31 to discuss means by which they could co-operate to secure employment for all returned soldiers. The meeting was called on the initiative of Brig.-Gen. Gunn, G.O.C., of the Toronto Military District, who, because he is both a prominent manufacturer and a returned man, wishes to help both parties. Gen. Gunn presided and after a mutual exchange of views it was decided to appoint a permanent standing committee composed of C. M. A. and G. W. V. A. representatives to take immediate action toward putting into effect a definite system by which work can be secured for Toronto's soldiers. The Toronto Branch of the C. M. A. will act for the manufacturers in Toronto.

Following the conference with representatives of the Great War Veterans' Association on January 31, a special meeting of the Toronto Branch Executive was held on February 3, when the following special committee was appointed to deal with the situation: Thomas Roden, L. L. Anthes, Jas. A. Riordon, W. C. Coulter, J. Allan Ross, E. G. Staunton, R. H. Easson, S. H. Chapman, R. L. McIntyre, J. P. Murray, W. C. Laidlaw, T. F. Monypenny and T. A. Hollinrake.

Mr. H. J. Daly, Director-General of Repatriation was present and addressed the meeting. Mr. Daly suggested the formation of a business council to consider and determine on united action in facing the whole problem of employment for returned soldiers. Major L. L. Anthes, chairman of the Branch, was also present.

Dr. Bruce Taylor's Address

On Thursday evening, January 30, a meeting of the Toronto Branch was held at the National Club for the purpose of hearing an address from Dr. Bruce Taylor, principal of Queen's University, on Industrial Research. In his opening remarks on this subject, Dr. Taylor referred to the danger of allowing any institution, established for the carrying out of research work for industrial purposes, to come under the influence of party politics.

The warning was given as apropos to an explanation of the proposal of the Dominion Government to erect and partially support laboratories at Ottawa for this work. As opposed to centralizing research work in any one place, Dr.

Taylor favored making use of what facilities have already been developed in the various universities throughout the country, which might be further developed by the financial backing of the manufacturers themselves.

Any plan to establish research laboratories, he said, must be approached in a broad-minded way. The industries fostering and backing such a scheme must realize that they could not always expect results that would have a direct bearing upon their businesses. If the plan was to be a success the experimental work must be done by men with vision, who should be given ample leisure to dream and potter and trifle; to dally with this scientific clue and that, to go quietly forward with their work unhampered by interruptions. In support of this, Dr. Taylor cited a number of revolutionary inventions which had been the outcome of accident and experiments directed in other directions, displaying a wide knowledge of a number of branches of science.

The logical place to look for such men, he held, was in the universities, and particularly in universities where research work was encouraged, and, he added, colleges that did not foster the spirit of research soon lost their virility and usefulness in the community. Universities had two functions; to teach and to carry forward the acquirement of scientific knowledge by experimentation. In the departments of arts and applied sciences, teaching was the main requisite, but in economics and such studies as mining, research work was the chief requirement, and it was through watching scientists at their experiments that the students gained the greatest good.

Prof. Macallum, said Dr. Taylor, had proposed to centralize this work in Ottawa, and by subsidies to the University of Toronto, McGill and a French college in Montreal, by means of Government aid. In this he foresaw the chance of the political element entering and, unless great care was taken, getting control. Once one gets into the political swim in Canada, he said, it is extremely difficult to get good work. He admitted that so long as the institute was in the hands of Prof. Macallum and his associates, it would be used for the purposes for which the manufacturers would back it, but unless the industrial interests got a firm grip upon it, he feared the control would fall into the hands of political patronage within a few years.

The doctor believed that the industries should range themselves in groups of kindred interests, and take their manufacturing troubles to the universities for solution. At his own college, he explained, many excellent results had been obtained for outside interests, who haid paid freely and gratefully for the help they obtained. One large firm, he said, had entered into a business arrangement with his university whereby it agreed to pay $15,000 a year and not more than $25,000 a year for a period of five years, for a series of experiments in metallurgy. He believed that this plan might be extended to other colleges with profitable results to both parties.

Questionnaire on Labor Supply

The special committee appointed at the executive committee meeting on February 3, held a meeting on the following day and considered plans for ascertaining to what extent positions might be available in various industries in Toronto for returned soldiers. A draft circular and questionnaire were submitted and revised and on motion were ordered to be issued to all members of the Branch in order to elicit accurate information. The following questions are submitted:

1. Maximum number of employees in your factory at any time before the war.
2. Number of factory employees now actually working for you, (*a*) male, (*b*) female.
3. Number of office employees, (*a*) male, (*b*) female.
4. Number of aliens at present employed.
5. Number of men who left your employ to enlist.
6. Number of returned soldiers now in your employ.
7. Number of returned soldiers you could employ.

Bell Telephone Rates

A special meeting of the Toronto Branch Executive was held in the Association's offices on January 30. The chairman explained that the meeting had been called to consider the position of the manufacturers regarding the application of the Bell Telephone Company for an increase of 20 per cent. in its rates. Mr. I. S. Fairty, assistant city solicitor, was present and explained the attitude of the city in opposing the proposed increase. After full discussion it was resolved that Mr. Walsh should be asked to represent the manufacturers at the hearing before the Board of Railway Commissioners.

Activities of the Prairie Provinces Branch

By G. E. CARPENTER
Secretary, Prairie Provinces Branch

THE casualty insurance companies writing workmen's compensation insurance in Manitoba applied to the Workmen's Compensation Board on January 21st, 22nd and 23rd for an increase in premium rates, amounting to 83 per cent. The Branch was represented at all the hearings by its solicitor, Mr. J. B. Hugg, K.C., and the Secretary, and at various times by different members, representing the line of business in which they were engaged.

From the evidence presented the insurance companies established the fact that during 1917 they paid out 81.1 cents of every dollar premium collected, to injured workmen for temporary and permanent disablement and death claims. The insurance companies alleged that it cost over 42½ per cent. of every dollar premium collected to run their business under the Manitoba Act and make a profit of 1½ per cent.

The Manitoba Workmen's Compensation Board had retained the services of an actuarial compensation insurance expert to advise it upon the application made by the insurance companies. This gentleman supported most of the recommendations made by the insurance companies. However, from the evidence submitted by your representatives and from examination of witnesses it appeared at the close of the hearings that the insurance companies could not expect to receive an increase of more than the 46 per cent., and it is hoped that the Board will not allow even so great an increase. The increases are not the same in all classes, varying with the experience of each class; not in Manitoba alone, but throughout this continent.

The examination of the expert by their representatives brought out the fact that he considered that there was a sufficient spread of risk in Manitoba to warrant treating it as a whole for insurance purposes, but that all employers and not manufacturers alone should be brought under the Act to make it a success. The expert agreed that a merit rating system, under which refund of part of premium would be made for good experience and additional amounts collected where the experience of the risk was bad, was desirable, but that it was very expensive to apply satisfactorily. At a general meeting of members held on January 31st

the whole matter was referred to the Legislative Committee for consideration and further report.

Returned Soldiers

The laxity of the authorities in permitting radical socialists to hold meetings of a seditious character so angered the returned soldiers that when the socialists called a meeting for Sunday, January 26th, to be held on the Market Square, Winnipeg, the returned soldiers gathered in large numbers to prevent the meeting being held. Some persons waving red flags were roughly handled, but the socialists leaders did not put in an appearance. Disappointed at this the returned soldiers then visited the Foreign and Socialistic Clubs and destroyed their premises.

On Monday following the returned soldiers visited several plants demanding that foreigners be dismissed and returned soldiers employed, and, the situation assuming threatening proportions, the Executive of the Branch held a hurried meeting and decided to publicly declare the position of employers upon the question of work for returned soldiers. A resolution was passed and printed in the daily papers of January 29. The Committee appointed in the resolution consists of Messrs. N. W. Warren, Chairman; L. R. Barrett, W. R. Ingram, Wm. Martin, J. W. Ackland.

This Committee immediately got in touch with the newly organized Committee of the Returned Soldiers and had a two-hour meeting with them on Wednesday, January 29th, when the whole matter was gone into thoroughly and it was felt that much good had been accomplished, both sides having come to a better realization of the position of the other.

On Saturday, February 1st, the Mayor called a meeting of business organizations, Returned Soldiers' Association and the Trades and Labor Council in his office. At this meeting a very general desire was expressed by employers to assist the returned soldiers, with the result that a permanent organization was appointed to deal with the various questions involving the returned soldiers' situation. This permanent committee will be composed of representatives from Army and Navy Veterans' Association, The Great War Veterans' Association, The Returned Soldiers' Committee, The Board of Trade, The Canadian Manufacturers Association, Trades and Labor Council, Canadian War Railroad Board and Returned Soldiers' Manitoba Commission.

Anti-Injunction Legislation

The Trades and Labour Council have approached the Government of Manitoba with an Act, which they request to be introduced at this session of the Legislature, providing for what they term "Peaceful Picketing." This proposed act includes one very objectionable clause from the standpoint of employers, reading as follows: "An action against a trade union, whether of workmen or masters or against any members or officials thereof, on behalf of themselves and all other members of the trade union in respect of any tortious act alleged to have been committed by or on behalf of the trade union, shall not be entertained by any Court." The Legislative committee of the Branch have the matter in hand.

Activities of the Montreal Branch in January

By W. P. HUGHES
Secretary, Montreal Branch

THE Executive Committee of the Montreal Branch held its monthly meeting on January 9th, with the Chairman, Mr. C. Howard Smith, presiding and a good attendance of members.

In the absence of the Chairman, Mr. G. F. Benson, the Secretary read a letter which Mr. Benson had received from Messrs. Meredith, Holden, Hague, Shaughnessy & Heward, Barristers, dealing with the change in the administration of the Quebec Corporation Tax Act. After some little discussion the Secretary was instructed to consult with Mr. Benson to the end that copies of this letter be distributed to the members of the Branch.

Mr. J. H. Sherrard brought before the meeting a plan by which the $25,000,000 that had been set aside by the Dominion Government for assisting in providing better homes for workmen in the various industrial centres, would be made available in a more practical way than had been provided by the Federal Government. Mr. Sherrard argued that if the Government would provide the machinery for making loans to workmen at a low rate of interest, this would ensure that the monies so voted would be utilized and would result in a great many workingmen becoming owners of their own homes, which in turn would be a potent factor in checkmating the element of Bolshevikism at present threatening in Canada. He suggested that the Association co-operate with the Government to see that no misuse was made of this fund; that employers might be utilized as advisers to the Government in recommending loans for their workmen. Mr. Sherrard moved and Mr. Heward seconded a resolution to the effect that the Branch Executive endorse the idea in general, and that the Central Executive be asked to secure the co-operation of the various Branches of the Association in working out some such scheme in this connection. A special committee consisting of Messrs. Sherrard, Rutherford and Stewart, was appointed to study this question and to report to the Executive Council.

The Secretary read letters from Mr. Trotter, of the Standard Clay Products Co., of St. Johns, Que., and from Mr. W. E. Shean, of the Canadian Consolidated Rubber Co., Ltd., Montreal, with reference to abuses existent under the Act owing to the lack of provision against exploitation of injured workmen on the part of unworthy lawyers. A special committee consisting of Messrs. F. G. Daniels, S. J. B. Rolland and Wm. Rutherford was appointed to study this matter further.

The Secretary read a report of the Educational Committee in which was outlined what had transpired at a meeting with Sir Lomer Gouin and the Honorable Walter Mitchell, when delegates from the Board of Trade, the Rotary Club of Montreal, the Protestant Board of School Commissioners, and the Catholic Board of School Commissioners joined with the local Committee in placing before the Quebec Government the necessity for providing additional revenues to the Protestant Board of School Commissioners. The Government were urged to find some other means of raising the required monies other than increasing the tax on property. However, the Government representatives were assured that if no other source could be found the various bodies present would support the increased tax two mills on the Protestant panel and one mill on the neutral. The matter was left in the hands of the Educational Committee.

The Chairman explained that it had been arranged through the General Executive to send Captain J. M. McIntosh to the local office as a resident supply in the absence of the

Secretary, and that the latter would leave for France at the end of the the month.

Messrs. J. H. Sherrard, and T. P. Heward explained what had taken place at a meeting held in the Windsor Hotel, Montreal, on the 8th instant, when representatives of the Soldiers' Civil Re-establishment Commission had outlined their plan with reference to Labor Bureaus in the Province of Quebec. It was moved by Mr. Sherrard and seconded by Mr. Daniels, that the Executive put itself on record as being in most hearty sympathy with this scheme, and that the Executive would be prepared to go to the limit in assisting in the organization and the development of these Bureaus. When the Bureaus had become a reality it was decided to issue a circular to the Branch membership calling their attention to same and urging that every possible use should be made of their facilities. The Secretary read a letter from Mr. J. R. K. Bristol with reference to a proposed change in the Tariff by which the value for duty on imported goods would be reckoned on the fair market value of such goods at time of shipment instead of at time of purchase, as the law now stands. After a great deal of discussion it was moved by Mr. Rutherford and seconded by Mr. Slater, that the Executive Committee express an opinion to the effect that the wording of the Tariff should be left as it is for the present.

It was decided to hold the Branch General Meeting in the latter part of February. In this connection Mr. Smith explained that he would be absent from the city, and that arrangements for this meeting would be made by the Vice-Chairman, Lt.-Col. W. J. Sadler.

No Change Desirable in Present Wage Scales

Labor Appeal Board, in Case of the Toronto Pattern Makers, Finds that, Having Regard to the General Situation, and with a View to Maintaining Confidence, Wages Should be Neither Increased Nor Reduced

THE Labor Appeal Board, acting under the authority of the Industrial Disputes Investigation Act of 1907, delivered the following judgment on 7th January, 1919, at Toronto, on the appeal in the case of various Toronto firms and certain of their employees, who are Pattern Makers.

The majority of the Board, consisting of the Honorable Mr. Justice Maclennan, chairman of the Superior Court, Montreal; Mr. S. R. Parsons, and Mr. G. H. Duggan, agreed on the judgment. The two Labor representatives, Messrs. John W. Bruce, and Mr. G. Francq, dissented.

"The Board of Appeal having heard the parties by their representatives on an appeal by the employers from the decison of a Board of Conciliation and Investigation rendered at Toronto on 10th December, 1918, having examined all the documents submitted in connection with the matter and deliberated thereon, renders the following decision:

"The dispute here is with reference to wages of Pattern Makers working in a number of Toronto firms and companies. The majority of the Board of Conciliation on 10th December, 1918, increased their wages to 75 cents per hour as a minimum rate to be effective from 6th November, 1918, to 1st July, 1919. The appeal is by the employers and mainly on the ground that the wages paid was sufficient and that the present is no time to increase wages as in a number of employments rates are being reduced.

"The Pattern Makers in Toronto had received at least two increases in 1918, and at the time their case was heard, were paid 65 cents per hour in contract shops and 70 cents in job shops. In 1914, the wages were 37½ and 45 cents per hour respectively. At the end of October, 1918, the Pattern Makers Association, of Toronto, made a demand for a minimum rate of 90 cents per hour. A conference of joint committees representing the firms and the Union, held on 1st November, 1918, was unable to come to an agreement and on 6th November the Pattern Makers Association signed an application for the appointment of a Board of Conciliation and Investigation, which was received at the Department of Labor, in Ottawa, on the 8th November. The Board was appointed in due course and began its investigation on 2nd December, and continued in session from day to day until its report was made on 10th December, 1918, when the Chairman and the member representing the Union made the report now the subject of this appeal and the member of the Board representing the firms made a dissenting report.

"This dispute concerns some 96 Pattern Makers and 25 firms, about one-half of whom employ only one or two Pattern Makers. The Armistice had been signed about one month before the Board of Conciliation rendered its decision, but before the request for an increase to 90 cents per hour was made, Germany had demanded peace and the Conference of Allied Delegates, at Versailles, to discuss the conditions on which hostilities might be suspended, had completed its work in the last week of October, when it was given out that Germany could obtain the terms of the proposed Armistice by applying to Marshall Foch. It is, therefore, abundantly clear that when the Pattern Makers made their demands on the firms for an increase, when they had the conference with the latter, on November 1st, and when a week later they applied for a Board, the coming of the Armistice was public knowledge and they doubtless foresaw the effect which it was bound to have on wages and other industrial questions. The signing of the Armistice, to be followed by Peace at an early date, has changed the whole face of the industrial situation and it appears to the majority of the Board of Appeal that the Board of Conciliation did not give this feature of the question the consideration that it deserved. The discontinuance to a large extent of war production, the release of many workmen in Canada, and the return of skilled workmen who have been in the Canadian Army overseas, has had a disturbing influence on industry. When to this is added the uncertainty of employers obtaining new contracts, the offers of labor in some instances at reduced rates, and the views of some manufacturers that, particularly in order to compete for foreign trade, there should be a general reduction in wages, it appears to the Board that the granting of an increase to the Pattern Makers was not justified and would tend to augment the unrest which is inseparable from the period of reconstruction through which not only our own country but the whole world is now passing. Ten per cent. of the Pattern Makers, who were at work a month ago in Toronto, are now without employment. The wages paid in Toronto, at the beginning of November, compare favorably with those paid in neighboring towns and cities in Ontario. Employers and workmen, for a few months at least, and until the future trend of industrial activities is determined with some degree of definiteness, should endeavor to work together and create a feeling of confidence in the future which is of vital importance both to labor and capital. For the foregoing reasons the majority of the Board of Appeal, after a very full consideration and having regard not only to this dispute, but to the general industrial situation throughout Canada, and with a view to maintaining confidence in the future and promoting good will between employers and employees, are strongly of opinion that for the present wages should not be either increased or reduced. This is as heavy a burden as in our judgment should be placed upon employers, temporarily, when they are to some extent marking time, and we believe should be considered fair and reasonable by the workers.

"The Board of Appeal therefore recommends:

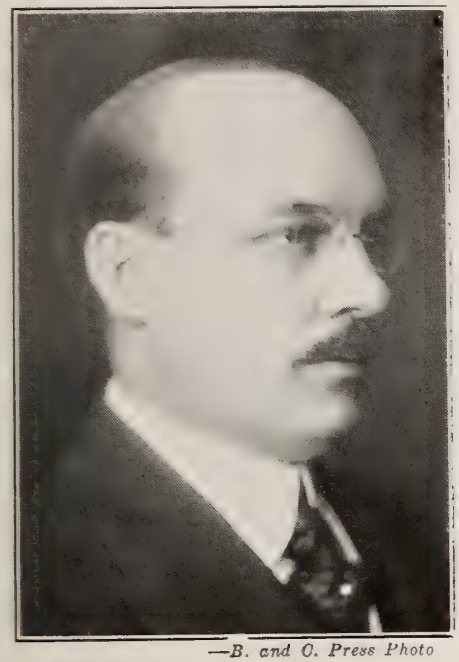
1. That the rates of wages paid to Pattern Makers in the City of Toronto at the time of the signing of the Armistice should be continued until one month after the publication in Canada of the Proclamation of Peace, and that in the meantime the minimum rate in contract shops should be 65 cents per hour and in job shops 70 cents per hour.

2. That where more than the above minimum rates were paid on November 11th there should be no reduction for the above period.

3. That for the common good the firms and the Pattern Makers interested should loyally carry out these recommendations."

Manufacturers to the Fore

Richard Stapells, who is this year presiding over the meetings of the Empire Club, of Toronto, and in that capacity is introducing various international celebrities to the members of that organization, is in business life president and managing director of the McElroy Maufacturing Co., makers of "Royal Garments." Mr. Stapells commenced his business career with Burton, Spence & Co., Toronto. For a couple of years he was engaged in the commission business in London, England, and then in 1902 purchased and incorporated his present company which had been established in 1880.



—*B. and O. Press Photo*

Richard A. Stapells

In 1914, Mr. Stapells held office on the executive of the Canadian Manufacturers Association, of which he has long been an interested member. He has many other affiliations, both business and social, and is a well-known figure in musical circles in Toronto.

The presidency of the Montreal Board of Trade this year will be held by a well-known member of the Canadian Manufacturers Association—Mr. John Baillie, managing director of the Dominion Oil Cloth Company, Limited. Mr. Baillie is a Montrealer, born and bred, and is now in his 61st year. He began his commercial career in the employ of a paint, oil and chemical firm, where he remained for nine years and then branched out for himself in a similar business under the name of John Baillie & Co. He sold this business in 1886 in order to become manager of the Dominion Oil Cloth Co., Limited, of which he is now managing director. Mr. Baillie is also president of the Canada Linseed Oil Mills, Limited; is a director of the Dominion Textile Co., Limited, and Canadian Convertors, Limited, and governor of the Montreal General, the Western, and the Children's Memorial Hospitals. Mr. Baillie's elder son, Archibald F. Baillie, is manager of the Dominion Oil Cloth Co., Limited; his younger son, Lieut. George Irvine Baillie, of the 60th V.R.C., C.E.F., was killed in action on August 8, 1918, in France.



John Baillie

It has been the good fortune of the Canadian Lumbermen's Association, which held its annual meeting in St. John, N.B., early this month, to have had as its presiding officer during the past year one of the most able and aggressive of the younger generation of Canadian manufacturers, W. Gerard Power, managing director of the River Ouelle Pulp & Lumber Co. Quebec. Mr. Power is in his thirty-seventh year, having been born at Sillery, P.Q., on April 19, 1882. He started his business career at the age of fifteen with W. & J. Sharples, and in 1902 became associated with his present company. Mr. Power has taken a keen interest in forestry and has served as president of the Woodlands Section of the Canadian Pulp & Paper Association, which has been concerned with problems of re-forestation, etc.



W. Gerard Power

The presidency of the Canadian Pulp & Paper Association this year has descended upon the shoulders of the general manager of the Brompton Pulp & Paper Co., Limited, Mr. J. A. Rothwell. Mr. Rothwell is one of the most aggressive of Canada's pulp and paper manufacturers, and has stood out prominently among them during the past few years. The Brompton Co. was incorporated just three years ago, though the industry in the St. Francis River Valley had been in operation for some time previously. The company owes much of its success to its general manager's energy and ability. Its progress has been watched with more than ordinary interest because of its large number of shareholders, who are scattered all over Canada and the United States.



J. A. Bothwell

Prospects for Canadian Iron and Steel*

The Outlook in Britain, France, Belgium and Other Countries for Canadian Iron and Steel Products—Position of Britain and the United States in World Markets—Canadian Manufacturers Should Supply Domestic Trade More Fully than in the Past

By COL. DAVID CARNEGIE, F.R.S. Edin., M.Inst.C.E.
Member and Ordnance Advisor Imperial Munitions Board

GENTLEMEN:—I am pleased to have this opportunity of meeting you to-day to talk about the possibilities of securing orders for iron and steel products from Britain, France and Belgium through Government and ordinary commercial channels.

We have happily emerged from the greatest world struggle known in history, the appalling effects of which make it difficult for anyone to accurately measure the immediate situation in respect to trade.

It is common knowledge that there has been serious destruction in Belgium and France, the restoration of which will call for abnormal demands of iron and steel products. It will of necessity take a considerable time before a complete estimate can be made of the requirements. While this is being done, however, it will give manufacturers the opportunity of changing over from war work to ordinary domestic pursuits.

Side by side with the increased demands for iron and steel products from both France and Belgium there has been a considerable increase in the world's capacity to produce iron and steel. It is estimated that the annual total world's capacity for steel production before the war was approximately eighty million tons; to-day it is nearly one hundred million tons.

Trade Through Government Channels

During the past four years, trade in munitions has flowed into factories without any expenditure by manufacturers to secure it. Manufacturers have not, therefore, had any incentive to develop their organizations for securing trade.

Before an estimate can be formed of the demands for products by the British and Allied Governments, it would appear necessary to decide:—

1. The size of the standing armies and navies (if any) to be maintained.
2. The amount of destruction caused by war to be replaced by each Government.
3. The national works, industries, or otherwise, to be undertaken by the Government.

As to the standing armies and navies, this is a matter which one expects would occupy the attention of the Peace Conference.

Prospects of Trade With France

With regard to the amount of replacements to be made by each allied nation, it is estimated that as far as France is concerned, her resourcefulness (together with the additional capacity to produce iron and steel which Alsace and Lorraine will give when restored to France) will enable her to repair her own waste places without calling upon other countries for much assistance, even although it may take longer to complete her work of reconstruction.

Some prominent leaders in industry are inclined to the view that France will not only be able to undertake her own work of reconstruction but will become a formidable competitor with Britain and other industrial nations in the export of her surplus production to foreign markets.

Prospects of Trade With Belgium

With reference to the prospects of Canadian trade with Belgium, through Government Departments, it is estimated by reliable authorities that for one or two years, during the time she is rebuilding her own works, Belgium will require to buy iron and steel products. When, however, Belgium's house is put in order she will return to her former place as an exporting nation, particularly in regard to rolled steel and cast steel products. One had only to look at what Belgium exported prior to the war, and note the rate at which she was building up a formidable export trade, to be convinced of her resources and ability.

Coming to the probable requirements for building and works construction to be undertaken by the British Government, not many seriously believe that the nationalization of industry, which would make the Government a competitor in industry with foreign and home manufacturers, is likely to prove a policy which the British Government would entertain. The amount of work likely to be secured through Government channels for public works will no doubt exceed the pre-war annual requirements owing to most of the ordinary Government contracts during the war having been suspended.

Prospects Through Ordinary Channels

If we look at a few facts regarding the relative iron and steel production of other countries with whom Canada will have to compete if she is to secure remunerative trade, we may be able to form some idea of trade prospects through ordinary commercial channels.

Canada has increased her steel production per annum from approximately one million tons before the war to a present output of two and a quarter million tons.

The United States has increased from thirty-two million tons to approximately forty-five million tons per annum.

Britain likewise has increased her steel producing capacity from seven and a half million tons to twelve million tons per annum.

While facts are not available as to the present steel producing capacities of both France and Belgium. It is estimated that Belgium's capacity of three million tons before the war will soon be restored and France's capacity of approximately four and a half million tons before the war will be greatly increased in a very short period.

Canada's steel producing capacity, therefore, has increased approximately from 1¼ to 2¼ per cent. of the total producing capacity of the world, a greater increased percentage than

* An address delivered before the Toronto Branch, Canadian Manufacturers' Association, January 27, 1919, and also before the Montreal Branch. Members desiring to have copies of this admirable review of the outlook for the iron and steel industry in pamphlet form should write at once to the head office of the Association.

any other steel producing country in the world. Canada has not to any great extent increased her capacity to produce iron ore, pig iron, or her steel finishing capacity.

During the war the United Kingdom has developed her iron ore deposits and it is expected her ore supplies will reach twenty million tons per annum during 1919, as against sixteen million tons in 1913.

In addition to her home supplies she imports from Spain and other countries approximately seven million tons of ore.

From these ores it is estimated she will be able to produce about eleven million tons of pig iron per annum when all her furnaces are in full blast.

It is believed that the supplies of ore will be a determining factor in the production of steel in the United Kingdom in view of the increased steel furnace capacity and the amounts required for iron products. The estimated steel output is based upon the assumption that her steel furnaces will be kept going.

In England there has been a great deal done to bring the capacity of the steel furnaces more into line with that of the blast furnaces.

Britain's Exports of Pig Iron

Before the war Britain exported to all countries one million one hundred thousand tons of pig iron per annum, but this amount has been very largely reduced during the war, the overseas markets being supplied by the United States. The estimated consumption of iron and iron goods in the United Kingdom is approximately three million tons per annum.

It is not expected during 1919 that Britain will be able to maintain her exports of pig iron to the same amount as her pre-war figure, but it is estimated that, after exporting what is possible, there will be approximately seven million tons of pig iron left for conversion into steel, out of the eleven million tons produced.

In 1913 the United Kingdom produced about five and three-quarter million tons of finished steel. She imported in various finished forms one million, eight hundred thousand tons of steel, making a total of about seven and a half million tons of finished steel, from which were exported to foreign countries over three million tons.

The steel she produced and imported was employed in the following industries in about the following percentages:

For Shipbuilding	22½%
For Building Works	11 %
Tin Plate	12 %
Galvanized Sheets	13 %
Railway Materials	16½%
General Engineering	25 %

It is estimated that during 1919 there will be required for shipbuilding materials an increase of steel amounting to forty-five per cent. more than 1913. It is uncertain what increase will be required for building work construction.

It is reckoned that the tin plate and galvanized sheet production will not be equal to the production in 1913 by approximately ten per cent. and twenty per cent. respectively.

The requirements of steel for railway materials will be approximately the same, but for general engineering an increase of nearly 20 per cent. will be required.

With regard to shipbuilding, while a large number of ships will have to be built, a considerable amount of repair work which has been in arrears will have to be undertaken first. The immediate consumption of steel, therefore, for shipbuilding will be less than later on.

In regard to works and building construction, it is believed that, once labor is restored to its normal condition, there will be a much greater demand for steel, as works will be continued which have been held up during the war.

The tin plate and galvanized sheet trades, during the war, have been working at a very reduced capacity, but it is anticipated that both these industries will recover their ability to produce and export as before the war, which was approximately 65 per cent. and 90 per cent. respectively, of their total production. On the other hand the United States has increased her annual production of tin plates very considerably and exported to the foreign markets usually supplied by the United Kingdom.

With regard to the demands for locomotives, railway waggons and other materials, while it is not anticipated that Britain's trade will increase immediately, yet there is bound to be considerable development for materials in this industry. Before the war Britain exported in railway material, approximately 65 per cent. of her total production.

With reference to general engineering, it is anticipated that the demands will be considerable and that the ability to produce will be restored speedily.

In view of the large stocks of motor waggons and other vehicles now with the armies, and which will be for sale, it is doubtful what increase there will be in 1919 over 1913 of such motor vehicles, but the number of pleasure cars should be increased.

With regard to agricultural machinery, many of the British makers have been employed in the manufacture of war materials and the change over from war to domestic work will take some time. The uncertainty in regard to Russia, and other European markets, makes it difficult to form any idea as to the actual requirements.

Britain's High Cost of Production

While the facts show that Britain has a capacity to supply her domestic requirements and her export trade in the iron and steel products named they also suggest that she will have a struggle to maintain both her home and export trade against American and Canadian competition.

It has been shown that to use her iron and steel producing capacity to the full, Britain must import ores from Spain and other foreign countries.

The increase in the amount of basic ores mined in Britain has helped the situation, but their comparatively low grade quality (about 30 per cent. average) increases the amount of fuel required and cost of manufacture. Putting aside the abnormal freight cost and insurance which existed during the war, there will still remain higher freight costs, higher costs of labor, higher costs of fuel and higher land transport charges than before the war, which will make the price of delivered imported ore on the most favorable estimate about twice the pre-war rate, or approximately from $10.75 to $13.00 per ton, including freight.

With regard to the price of hematite ore mined in the United Kingdom, it is estimated that it will be approximately 50 per cent. more than in 1914, or ($7.50) per ton.

The prices of hematite and basic pig iron will be, therefore, correspondingly higher than pre-war prices.

Taxation of Industries

Added to this handicap in the high cost of raw material entering into all the iron and steel products, is the high war tax which must be paid from industry.

To Britain this tax has become enormous and if considered in the cost of production it makes favorable competition with other countries, which are less heavily taxed, all the more difficult.

If we look at the national debt before the war in the United Kingdom, which was 3,250 million dollars, and compare it with the present debt of 28,500 million dollars, we obtain some measure of what the additional tax on industry

means. If we take the interest on the present debt at five per cent. it amounts to 1,425 million dollars as compared with 95 million dollars on the pre-war debt.

The pre-war national income of the United Kingdom was 1,200 million dollars. If all forms of taxation, direct and indirect before and after the war are considered in terms of a single tax on national income, it is calculated by reliable authorities that the taxation would be as follows:

In the United Kingdom before the war ⅛ in the pound or eight cents per dollar; after the war 4-8 in the pound or 22½ cents per dollar.

If we compare the probable taxes of the United States calculated on the same basis, we have the following:

Before the war her national income was 40,000 million dollars and her present national debt is estimated at 11,250 million dollars which amounts to a taxation of 3.6 cents per dollar, compared with 1.6 cent per dollar on her pre-war national debt.

This means virtually a tax on British industry at 22½ per cent. of her total annual income as against 3¾ per cent. of America's annual income on her industry.

With regard to Canada's position, her pre-war national debt was 345 million dollars, and her present estimated debt 1,750 million dollars. The pre-war interest taken at 5 per cent. amounts to approximately 17½ million dollars, as against 85 million dollars on the present debt, or an addition of 67½ million dollars. Taking Canada's national income for 1914 at $1,090,000,000 the increase in taxation due to increase in interest on war debts alone, amounts to approximately 6 per cent.

It we compare the extra taxation necessary in the United Kingdom and United States due only to the increase of interest on present war debts over pre-war debts as a percentage on pre-war national incomes of United Kingdom and United States the following respective percentages of approximately 10 per cent. and 1 per cent. are obtained.

The relative handicaps to industry on this account are:

United Kingdom	10
Canada	6
United States	1

It is to be hoped that the indemnities the allies will obtain from Germany and her allies in the great war will relieve them of the heavy taxation to which I have referred.

These figures indicate struggle, but struggle has made the United Kingdom, struggle has made Canada, and I believe that any country that has passed through a crisis such as the United Kingdom and Canada have passed, need have no fear of the handicaps which the foregoing plain facts reveal.

The productive capacity of the United Kingdom per worker is far in advance of what it was before the war and the same can be said for Canada.

There is no room for discouragement and pessimism, for the closest study of the industrial situation reveals for Canada a bright outlook.

Canada's Opportunity

What then, you may ask, are the prospects of utilizing the capacity for iron and steel production in Canada, to which such splendid additions have been made during the war? I think the question can be answered from the facts I have given.

The facts show that Britain has a capacity for steel production exceeding her pre-war capacity of 62.5 per cent. while Canada's capacity has increased 125 per cent.

The manufacturers of the United Kingdom have set their faces like a flint to the task of utilizing their increased capacity.

In the very handicaps I have named, which to some races would bring overwhelming discouragement and defeat, they see success. They have tested their strength during a struggle when skill and endurance were taxed beyond natural limits and they enjoy to-day the fruits of triumph. Their confidence in the continuance of the determined and united efforts of themselves and their employees in the days of struggle ahead has led them to measure up to a serious situation with a courage that is boundless and they know that success will be achieved through hard and harmonious work.

If Canadian manufacturers, who are in some respects in a better position to return more quickly to normal conditions than Britain, will follow her example by determining to supply her domestic trade more fully than in the past, Canada by doing so, will go a considerable distance in using her surplus steel capacity.

Canada's Domestic Needs

Britain imported in 1913 from Germany about one million tons and from Belgium about five hundred thousand tons of steel products consisting of rolled bars, blooms, girders, plates, sheets, wire rods, wire nails, etc. She did not import these because she could not make them but because she could not make them as cheaply as Germany and Belgium.

Canada's position in relation to iron and steel products is analogous to that of Britain. Canada imported from Britain nearly 200,000 tons, and from the United States nearly 1,000,000 tons of steel girders, angles, bars, etc. In girders alone over 300,000 tons were imported from the United States during 1913.

I believe Canada should have at least one structural mill for rolling heavy structures. I hope the time is not distant when she will produce her own requirements in this respect and be able to stimulate an export trade. The large plate mill now being installed at the Dominion Iron and Steel Works should absorb a large tonnage of steel.

Canada buys tin plate and galvanized sheets in no small amount. In 1912 she imported from Britain between 30,000 and 40,000 tons of these materials. She also imported several million dollars worth of galvanized and black sheets from the United States. It is most encouraging to find that Canadian manufacturers have not been behind in recognizing the need of increased sheet mills and that there is a growing capacity in this respect which will increase production of galvanized sheets and tin plate bars, and I hope before long, tin plate.

The Canadian demands alone of the electrical industry for higher quality steel sheets is not by any means insignificant and should be supplied by our manufacturers who have finishing mills.

The growing demands for alloy steels for motor cars, tractors, all kinds of engines and high class machinery where excessive wear calls for a better and more enduring steel should arouse the most earnest attention of the makers of electric and crucible steel.

The importation into Canada of tool steel, file steel and files, spring steel and springs, should be reviewed by the makers of higher class steels. There is no doubt that a much larger volume of that business should be undertaken by the manufacturers of Canada.

I need not elaborate on the formidable list of steel products imported into Canada before the war, but I do want to emphasize the need of the closest scrutiny and care in the selection of the kind of imports which might be manufactured in Canada, which will be not only suitable for Canadian but foreign markets.

I cannot refrain from reference to the facilities we now have in Canada for the production of the highest grades of steel upon a commercial basis. We have many fine electric

furnaces in different parts of Canada. In this great city we have an electric steel plant which is the largest in the world. The manufacturing costs of electric steel produced in Canada were the wonder of steel manufacturers in England.

One of the largest manufacturers of steel in England with six electric furnaces to whom I showed our costs, informed me that our electric steel costs were about 50 per cent. lower than his and our output about double from furnaces of the same size.

We are, gentlemen, conscious of many handicaps in our industrial struggles here, but we have much for which we ought to be grateful and take courage. Our electric power is an asset not yet fully appreciated and understood by our manufacturers. It is much cheaper than in Britain.

We have fine deposits of magnesite in Canada, developed during the war, which is of excellent value for our furnace linings, making it unnecessary to import as hitherto.

Our carbon electrodes are second to none—and cheaper than are produced in England. We have nickel in abundance. Everything in fact calls for Canada to rise to the first rank as the producer of high quality steels. She has the opportunity by sustained and wise propaganda of displacing much of the heavy, cumbersome, short-lived, common carbon steels used in our rolling stock and bridges, our ships, dredges, docks, mines, and general machinery, and of becoming one of the principal exporting countries in the world.

Hard Work Needed

The things I have named—power, electrodes, magnesite, and nickel, enter so much into the vital cost of producing high grade steels that Canada stands out almost alone in its great opportunities in this direction.

We must not, however, come to the conclusion that we can accomplish much without hard and persistent work. Many of the manufacturers have had the depressing duty of discharging their employees recently and gradually seeing their factories and works go on short time. A few months ago they were wearing out the nerves and physical powers of themselves and their workers. Don't be surprised if your perspective of the possibilities of trade is somewhat distorted and your hopes of a speedy restoration are somewhat gloomy. These distortions and fears are only natural, but don't allow them to interfere with the need for vigilance now.

In the first place there are statistics in regard to the world's trade in iron and steel products which every manufacturer should know—statistics which I had hoped to place before you to-day in order to give you a clearer view of the possibilities of export business particularly in Britain and in the countries of France and Belgium.

Time has not permitted of that full investigation I had hoped to make while in Europe to enable me to place before you the total capacity of each industrial country to produce iron and steel products and to assemble facts as to the demand of each country for semi and finished iron and steel products. I hope, on my return to England next month after the completion of my duties in Ottawa, to continue my investigation, which I may have the pleasure of placing before you later.

Manufacturers, however, will doubtless find in looking into the kind of products they ought to produce, instead of allowing to be imported, and in considering what additional units of finishing plant they shall require to install, that the most economical unit suitable for their requirements may be larger than necessary to take care of the domestic trade of Canada. In order, therefore, to keep such a plant going to the full, an export trade would have to be established.

The question, therefore arises, first, where the surplus products could be sold? Second, how are orders to be secured?

I have mentioned the conditions of trade in Britain, France and Belgium, but already Canada exports to many countries of the world and is not dependent upon Europe only for its markets.

It seems to me that Canadian manufacturers have to ask themselves the following question in regard to securing export trade:

(1) Is the machinery of each company in the best of shape to secure the world's trade for its products.

(2) Would a collective organization of the employers in each industry set up better machinery for securing trade for the industries as a whole than the individual manufacturer in securing trade for himself.

(3) Are the processes, plant, equipment and personal organization in such a condition to meet the keenest competition.

(4) Should manufacturers in the same industry confer together in regard to what lines of trade they will each undertake with a view to avoiding over-production on the one hand and under production on the other.

Some are doubtless attaching too much importance to what any government can do in securing trade. I think the most manufacturers can expect from the Government is a direction and assistance to the sources of trade where orders may be negotiated by the manufacturers with the purchaser. It is the business of the manufacturer to go after the work and make the bargain.

In Britain there is a growing sense of the need of united effort of manufacturers of the same industry in securing trade for the industry as a whole. Instead of each manufacturer in the same industry sending a representative to a foreign country to secure trade, groups of manufacturers are coming together and are sending the best men they can find who are thoroughly conversant with the business and whose standing and ability will command respect, to represent them in the markets of the world.

This spirit has grown, I believe, because of the splendid pioneer work done by the British Government during the past two years in the establishment of joint industrial councils for each industry. Already at least twenty industries have joint industrial councils which are virtually the medium through which all recommendations concerning the welfare of the workers or the needs of the industry are expressed to the Government not by the voice of the employers only but by the voice of the workers and the employers in equal numbers. These industrial councils were not formed to secure trade but with a view to maintaining efficient production.

Workers Learn Difficulties

The workers, however, in meeting with the employers, have seen and heard their difficulties in matters of securing trade. Proposals for the combination of employers which some years ago would have been condemned as a menace to the consumers and as institutions of monopolists for greed and gain are now, with proper safeguards, regarded as the sanest possible way of securing trade in the interest of workers and masters.

I am glad that Canada has caught on the spirit and that she is sending representative men to Europe from groups of manufacturers in the same industry. I believe greater results will be obtained thereby than by sending men from each manufacturing establishment.

Gentlemen, I hope the day is not far distant when the manufacturers in each industry will consider the advisability of joining hands with the manufacturers of the same industry in the different countries of the world with a view to international agreement about securing trade and distributing the products of industry.

I hope further that the first step in this direction will be taken by the manufacturers in the iron and steel industry throughout the British Empire.

Mr. Rockefeller's Industrial Creed

The following statement of belief was submitted by Mr. John D. Rockefeller, Jr., at the Reconstruction Conference called by the Chamber of Commerce of the United States in Atlantic City in December, and was endorsed by the delegates present:

1. **I believe** that Labor and Capital are partners, not enemies; that their interests are common interests, not opposed, and that neither can attain the fullest measure of prosperity at the expense of the other, but only in association with the other.
2. **I believe** that the community is an essential party to industry, and that it should have adequate representation with the other parties.
3. **I believe** that the purpose of industry is quite as much to advance social well-being as material well-being, and that in the pursuit of that purpose the interests of the community should be carefully considered, the well-being of the employees as respects living and working conditions should be fully guarded, management should be adequately recognized, and capital should be justly compensated, and that failure in any of these particulars means loss to all four.
4. **I believe** that every man is entitled to an opportunity to earn a living, to fair wages, to reasonable hours of work and proper working conditions; to a decent home, to the opportunity to play, to learn, to worship and love, as well as to toil, and that the responsibility rests as heavily upon industry as upon government or society, to see that these conditions and opportunities prevail.
5. **I believe** that industry, efficiency and initiative, wherever found, should be encouraged and adequately rewarded, and that indolence, indifference and restriction of production should be discountenanced.
6. **I believe** that provision of adequate means of uncovering grievances and promptly adjusting them is of fundamental importance to the successful conduct of industry.
7. **I believe** that the most potent measure in bringing about industrial harmony and prosperity is adequate representation of the parties in interest; that existing forms of representation should be carefully studied and availed of in so far as they may be found to have merit, and are adaptable to the peculiar conditions in the various industries.
8. **I believe** that the most effective structure of representation is that which is built from the bottom up, which includes all employes, and, starting with the election of representatives in each industrial plant, the formation of joint works committees, joint district councils, and annual joint conferences of all the parties in interest in a single industrial corporation, can be extended to include all plants in the same industry, all industries in a community, in a nation, and in the various nations.
9. **I believe** that the application of right principles never fails to affect right relations; that the letter killeth and the spirit maketh alive; that forms are wholly secondary, while attitude and spirit are all-important, and that only as the parties in industry are animated by the spirit of fair play, justice to all and brotherhood, will any plans which they may mutually work out succeed.
10. **I believe** that that man renders the greatest social service who helps to afford to the largest number of men the greatest opportunity for self-development, and the enjoyment by every man of those benefits which his own work adds to the wealth of civilization.

Reconstruction from Labor's Standpoint*

Closer Co-operation Between Capital and Labor is Desired—A Greater Interest by Manufacturers in the Public Administration Needed—Great Importance of the Educational Problem and the Necessity of Raising the Standard of Living of the Working Classes Imperative

By COUNCILLOR PETER WRIGHT
General Secretary, British Seamen's and Firemen's Union



RECONSTRUCTION! I am afraid we talk too much about Reconstruction. Whenever you hear a subject that is talked about a great deal you will always find very little work is done. Now we are talking too much about Reconstruction and we are doing too little, and that is one of the defects in our character.

I am not going to talk to you as a business man, but as a shell who has knocked around the globe with his eyes open. I remember some twenty years ago in going into South Africa, I found that the Germans were everywhere trying to oust our commercial representatives in every department. I found the same thing out in India. I found it in China and Japan, also in South America, and you couldn't go to any spot in the Antipodes but you would find the Hun there, adapting himself absolutely to the habits of the people and the psychology of the people living in that district.

Here I am speaking in Canada to Canadian business men, and from enquiries made I find that in 1914, comparing the peculiar existing conditions now and then, there is a wonderful change. In the beginning of 1914 things were on the verge of bankruptcy. To-day you are living in affluence. You are having the time of your lives, and you have never met with such industrial success as you have met with to-day after four years of war. Now, then, the greatest mistake from which we have suffered in the past has been prosperity. It is prosperity that has killed all the great nations that ever existed. Take Assyria, Rome, Babylon, Persia, Greece, and you will find in every instance that it was not adversity, but prosperity that killed them every time.

Too Much Prosperity

Take Great Britain. I remember only about six or seven years ago I was stumping for a seat in the United Kingdom with Lord Charles Beresford. (Some people said it was not very desirable company. Labor leaders asked me "How much are you getting out of this one?" From the very fact that I was associating with a lord like that they put me down as a Shylock, a twister, a turncoat. But in spite of all the adverse comments I knew what we were in for.) Now while we were stumping the country, we came in contact with only a small minority of the people in the various cities, but we noticed that the bulk, the brain, and the sinews amongst the manufacturing people were not there. Why? They were all too busy looking after their own business, too busy making money, and they were leaving all these minor details to politicians. If it had not been for the Navy League and for such men as Lord Charles Beresford stumping the nation, pointing out to them troubue—catastrophe staring them in the face—unless they were on the alert, the naval estimate passed in 1910 and completed in 1914, which was the means of saving you and the Empire, would not have been secured.

The point I want to bring home to you is this, that the bulk of the people, the free people who ought to have taken an interest in these matters, did not take any heed. They were careless and indifferent, although they did not mind how much they contributed in the way of rates and taxes.

Taking Stock of Conditions

I believe that every business man is in the habit of taking stock every year. I would like you, as business men in Toronto, to take stock, not of your puny, tiny little factories and the few commodities you have, and the outstanding debts towards your customers, but as citizens who realize your responsibilities as a unit in a great Empire, and to take stock of all the actual conditions that are prevailing at the moment and the opportunities that are offered to you, and as citizens of a great and mighty Empire. I demand that as a citizen, because I want you to remember—and I know from what I have seen—that some of the flower of our manhood sacrificed their business for a bigger interest. I know a man with a £10,000 income who had the opportunity of being released from the army on account of his important work, but he chucked it overboard and went to the front like a man. And they have died there. Thousands of men have died at sea. What for? What did they do it for? Money? Oh, no! And

Co-operation Declared to Be Imperative

"I call you fellow workers because, although I am aware of the fact that you are all infinitely better off than I am, I have always recognized that there ought to be interdependence between all, and I feel to-night, more than ever I did in my life, that co-operation between us, whatever our standing in life may be, is imperative. This distinction,—social distinction,—existing between us, is due entirely to ignorance and class prejudices which exist in Canada to the same extent as they do in India. It is also due to the want of education. I hope the time is not far distant when the poor man, even if he is only a toiler on the land, will receive the same recognition as the millionaire, because he is just as essential to the community as the greatest millionaire living in the land."

—COUNCILLOR PETER WRIGHT
Addressing Toronto Manufacturers.

* An address delivered before the Toronto Branch of the Canadian Manufacturers Association on Monday evening, January 13, 1919.

Manufacturers Must Organize

"As long as we have a hundred maunfacturers working entirely on their own, so long will you have friction, so long will you have dirty undercutting, so long will you have labor troubles and so long will you be into the mire and into the hot water. I believe one of the needs of the day is for all manufacturers to consolidate, to unite and to organize upon a good solid basis."

I can assure you they did not do it for office. What was the object in view? The object in view was, first of all, the sense of duty in their breasts that compelled them, that called on their manhood to put aside their individual wants and requirements and aspirations and follow the great object of securing the safety of the Empire, the liberty of democracy for posterity. These men gained their object. They accomplished their mission, and I want you and I to stop flag-waving and talking about the glorious deeds on the battlefield. I want you and I to set to work, now that these men have accomplished their purpose, to dedicate ourselves like citizens to a great, noble and mighty cause.

German Menace Not Dead

These men have fought and died. They have only made secure for the time being, and unless we follow it up very closely and start on new lines, the probability will be that, no matter what you do, Germany in another twenty years will arise again like a mighty demon and attain the objects that she failed to attain during the last four years. I want to set you thinking. Germany, with all her knowledge and with all her skill, made the greatest mistake in her life. Had Germany waited for another ten or fifteen years she would have wiped every competitor out of the foreign markets, and would have practically ruled the world. I think every business man will agree with that statement. Only they were like the dog in Æsop's fables, who had a bone, and while crossing that little stream he could see the shadow of another, and he let drop the real one for the imaginary one. He made a mistake.

How are we to alter this? First of all by destroying the ideas of materialism which have to a very large extent occupied our minds. Business men in the past have had the idea that the whole object in their life and the whole of their responsbility and duty centered in one particular channel and that upon the line of "Does it pay?" Everything to-day is measured by dividends. I think it is a mistake. I think it is foolish. It is materialism that destroyed Germany, and by aiming at wealth and power she lost her soul. Now, after the battle has been won and our noble men have done their duty during the last four years, I was wonderng whether it was possible to reconstruct society entirely on a new basis. Personally, I don't want to go back on the old lines. That is my own view. Perhaps my mind has been tainted with the ideas of Ruskin, Messigny and Tolstoi. The chairman did not know whether I was a Socialist. I have been for many years, and the aim and object of my life has been to substitute the Christ-like spirit for the Cain spirit which is existing and entwined in every fibre of our social anatomy.

I believe that with co-operation, with a recognition of responsibility and a realization of duty, it is possible to reconstitute society, and I beleve there never was a tme in the history of mankind when the Anglo-Saxon race had an opportunity like they have at the present moment. They have proved during the period of the war that they have a soul. I am satisfied on that point from what I have seen in Great Britain from the commencement of the war. Take the stand of Sir Edward Grey when the German Ambassador tried with might and main to pulverize him and chloroform him. He sad, "No; I stand upon my honor, and if you break the agreement signed in connection with the neutrality of Belgium, I will take it as an act of war." Hollwegg thought that Britain had no soul, that she was materialized. He thought that Sir Edward Grey would have reasoned, "Here is the chance of our life to make our fortune, while these two are fighting." But he said "No, I will stand upon my honor." And right through this war Great Brtain has proved it by losing all her wealth, losing the best of her manhood, losing practically all her trade, and losing 50 per cent. of her mercantile marine. I think that is ample evidence, and the determination of the people to keep on, no matter at what cost was surely sufficient proof that the nation had not lost her soul, neither was she entirely materalized.

Now the war is over, how are we to retain that spirit? How are we to carry on? It is a difficult problem, a problem

Education Stands Pre-eminent

"You may make rules and regulations and go to Ottawa and get all the committees that you can get, but unless you deal with the educational problem more effectively than what you have done, all your labor will have been useless and in vain."

that is under consideration by the greatest minds that ever lived. The failing in the past has been here—the different and various parts of society were not in harmony with one another. There was no spirit of co-operation existing amongst the various classes of society. I could give you several instances. I remember not many years ago I tried to see a big shipowner, and he would not see me at any price. Not he! I tried my level best to get an interview for Havelock Wilson. Nothing of the kind. He absolutely declined to meet us. I went to the Shipping Federation, a great, powerful body, and they absolutely declined to meet the seamen. Well, there was no alternative. We had grievances, and serious grievances. And I told a very prominent man, "I don't want you to be foolish." I said, "For two years we have been trying to reason with you. We cannot do any more. I am not on my own. It is no benefit to me. I am not paid for the job." Well, there was no alternative for us, but in 1911 we were compelled by sheer force of necessity to bring the whole of the United Kingdom to a standstill. Now, surely there was no need for that. Pure cussedness, ignorance!

Result of Seamen's Strike

And what was the result? The seamen were only getting £4 a month, and I did not think that was sufficient. I tried my level best to get an increase of 10s., because I knew the companies were doing well. But, no. After the strike (which lasted for a fortnight, during which time every port in the United Kingdom was at a standstill) had been on for twenty-four hours they called on me and they offered the men £1—10s. more than they wanted at the outset. Well, the result was then the men wouldn't go back until they had three times the amount. Not only that, but the whole of the transport department in the United Kingdom followed suit. The point I am making is the stupidity on the part of a section of the community in not meeting the men face to face to argue and reason the thing out.

But I am pleased to tell you that whatever evils this war has produced it has brought about a good few blessings, and

in spite of the number of people that have been killed, in another ten years I believe an equal number will be saved in the way of wounded and killed through industrial strikes which will be prevented. Now what was it due to? It was due entirely to misunderstanding. To-day I can meet any shipowner in the United Kingdom, and he is only too pleased to see me. Why? There is an understanding between us. We know one another. That is the great secret. And I remember one particular chap, by name of Ratcliffe, how he would balk at me prior to the war, call the seamen all the names he could lay his tongue to, and this very same man, only two years ago said to me, "God, Peter, I feel proud of your men. What can I do for them?" "Well," I said, "I don't know; I'll leave that to you." He bought us a beautiful home at a place called Linnsfield in recognition of what our men had done during the war. And there is not a shipowner throughout the United Kingdom but who is working in harmony with us as an organization, while as a result of the war in every part of the United Kingdom there is a committee appointed, with four representatives, two seamen and two shipowners. We have also got a Maritime Board in London, and any disputes that cannot be settled locally are forwarded on to this Board in London.

Misunderstandings to Blame

After all, why had not these things prevailed before? It was due in a large measure to misunderstanding. I remember a big strike on in England, and I was asked to go to London. I was in London a week, but it was easier to get into a harem at Constantinople than to see this shipowner. You could not get at him. The idea of an ordinary working man approaching him—well, it was out of the question entirely. What has the war done? The Admiralty Office and every public department in London, all the leading Cabinet Ministers, will tell you what the leaders have done for them during the period of the war. There was not a day went by but what these men were in close conjunction with labor officials. I have been to the Admiralty Office at the request of Lord Jellicoe and Sir Edward Carson. Just imagine these two great men calling upon an ordinary shell like me and like Havelock Wilson to deal with the questions of convoys and of submarines. I want you to see the changes of the times, I want you to see the opportunities, I want you to realize the peculiar atmosphere which is in existence to-day, which I do not think existed before, and I do not want you to let it go by, but to take hold of it and use it to your advantage and to the advantage of the nation. And I will tell you for why. If we do not do it, the chance will never come again.

(At this point Mr. Wright introduced some observations on the business aspect of the situation, supplying some forcefull illustrations of the way in which Germany, by reason of the antiquated ideas and inferior commercial services of other nations, was able to obliterate their competition in world markets.)

I have gathered certain impressions while I have been in Canada. I may be wrong. If I am, I hope you will go for me. I have met some of the most capable men in Canada I have ever met in my travels, but I find in every instance that these men will neither touch, taste nor handle political life, and, as a result, your best men are not on your public bodies. You are indifferent. You are careless. You are too eager to work up your own business and make money. Now take a city like Toronto. I have seen conditions prevailing in this city that are diametrically opposed to the welfare of industry and manufacturing. And I will tell you why. I have been telling men for years and years that if you want to have contented and happy workmen you must see that there is provision for them to live in healthy dwellings. It doesn't matter what you pay them. You may pay them $20 a day and reduce their hours to four a day, but as long as they live in hovels and have no elbow room and the environment for their wives and children is unhealthy, these men will always grown and will not be contented. Such a man, when he comes to work in the morning has a bad taste in his mouth, and he won't give you the best he can give. He is always willing and eager to kick up a quarrel with anybody, and the employer, by preference, if he has the chance. Now, then, I say it is the duty of the manufacturer to right this, because I look upon manufacturers as big men, the backbone of the nation; men that are working harder than any other men I know of in the community. They have got the brains, live in dead earnest and work hard. Now I want you to divert a little of that surplus energy, concentrate it and consolidate it among you as an organization and pay a little more attention to civic life. Do not let that be entirely in the hands of political exploiters, who use their power just as they like. You must take a keener interest in your city life if you have any ideas or ideals in the reconstruction of society. Not until you deal with the poor and the toilers in a more effective way will you ever create a better condition of society.

Must Solve Educational Problem

The next point, and I want you to pay particular attention to it, is this. You may make rules and regulations, and go to Ottawa and get all the committees that you can get, but unless you deal with the educational problem more effectively than what you have done, all your labor will have been useless and in vain. A working man's education has consisted of the three R's, and he is taught until he is about fourteen so he may become a profitable machine for the sake of creating surplus value. He is ignorant. He knows nothing at all about citizenship. And you have the audacity to spend twenty minutes every day of your valuable time in teaching him how to live hereafter, while you do not give him two minutes to tell him how to live here. Now, when

The Day of Opportunity

"I want you to see the changes of the times; I want you to see the opportunities; I want you to realize the peculiar atmosphere which is in existence to-day, which I do not think existed before; and I do not want you to let it go by, but to take hold of it and to use it to your advantage and to the advantage of the nation. And I will tell you why. If we do not do it, the chance will never come again."

Healthy Dwellings Are Needed

"I have been telling men for years and years that if you want to have contented and happy workmen you must see that there is provision for them to live in healthy dwellings. It does not matter what you pay them. You may pay them $20 a day and reduce their hours to four a day, but as long as they live in hovels and have no elbow room and the environment for their wives and children is unhealthy, these men will always growl and will not be contented."

that boy grows up he gets hold of literature, he gets literature of the I.W.W.—I won't work. He gets hold of philosophy which tells him the enemies of the working classes are the capitalists. He says, Well, here I am with my wife and six children, living in one room, in unhealthy surroundings; I have got to toil twelve hours a day, and it takes me all my time to get food and to cover my nakedness. That feeling takes root and eventually he becomes an enemy of society, an enemy to himself. If you want to reconstruct society you have got to remove the causes which are producing these facts.

What do you find in the schools of Canada? First, there are fifty and sixty pupils in a class. Now, I am the father of eight and often times on Sunday I have tried to control the eight, but I always failed. How you hard-headed business men can expect a woman or a man to control and discipline and inoculate sixty children with wisdom passes my comprehension. But you do not worry about this. You leave these things to the political muddlers. You let them do your thinking.

Raise Standard of Education

Who do you employ? Do you get the best men and women? If you want to reconstruct society it is imperative that you raise your standard of education and see that in every infant school you have the highest trained men and women that you can lay your hands on—university men and women who will be able to innoculate every child in that infant school with the ideals of education and raise them to the highest standards of citizenship. I maintain to you business men that that would be the greatest paying proposition for Canada. If you let things drift, troubles are ahead for you. And if you spend money in that direction it will be the greatest investment and lasting security that you could ever go in for.

Then the next problem you have got to face in Canada. There is no good in starting Reconstruction unless you finish it. You have not got the teachers to deal with this problem, due to the fact that they are paid starvation wages, and no man or woman with any independence and courage would ever dream of entering the teaching profession because it is the most underpaid profession in the world to-day. And it is at the same time the most honorable and the most important because what your citizens will be in the future depends entirely upon the way you handle them in your class rooms and in your school rooms. You want to have the highest men and women in your schools, and create an environment that will be joyful and bring forth every potential and every latent quality within that child's brain. Thousands of men are carried to the grave and buried beneath the sod whose valuable assets are buried with them for the want of their being brought out and giving them a chance.

Dream by the Stars

I feel eager about this matter because, without doubt, we are the greatest empire under the sun, and the brain power attached to the Anglo-Saxon race is great, superior to any other race that I know in the world. If the whole race were only looked after and drawn out and the brain power of every individual properly developed, it would simply throw every other thing that you can conceive of into oblivion. I want you business men to think over these matters and to bring them into your Reconstruction. I want you to dream by the stars. I want you to remember that there are treasures of untold wealth yet hidden in the bowels of the earth, and that the heavens above and the earth beneath are temples of mystery, and that above all men that ever lived, you have opportunities, and that you have and all that you know are but the pledges of the glorious heritage of God. The past has been an era of oppression, an ambiguity of ignorance, of darkness. History is but the diary of barbarism, through whose chronicles we emerge to a civilization whose history is yet to be read.

As a seaman, as an ordinary working man, I appeal to your souls, I appeal to all that which is noble within you, and beg you to accept that sense of responsibility and duty and rise to the ideas of citizenship; to give a small portion of that time, of that energy, of that brain power of which you are the owners and devote that for the sake of building up this great empire and for the sake of helping humanity. Labor is willing to receive you. Labor is eager, anxious, and I speak from experience. I have spent my life in labor's midst, I have toiled for them and their heart is sound. They are only waiting for you to approach them in that spirit of brotherhood, in that divine spirit. They are willing to cooperate with you to remove all those misunderstandings that exist between you and the workers in the past. They recognize that before we can attain that new era for which we are looking forward, there must be a reunion between us and that the greatest and crowning good lies finally in universal brotherhood. They know it will bring again new light on every face and that kingly power to every race. Until that comes we men are travelling backwards. We, as working men, ask you to lead the way.

Minimum Wage Legislation in Saskatchewan

Measure Introduced

THE province of Saskatchewan is to have a minimum wage act for women. A bill for the purpose was introduced in the Legislature recently by Premier Martin. In a brief statement as to the intention of the bill, the Premier stated that the question of a minimum wage for women had received serious consideration for some time past. The question was one of great importance although it had been generally felt in Saskatchewan, with seventy-two per cent. of the population on the land, the need for such legislation was not so acute as in other places.

The question has been approached in divers ways by different countries and by different provinces in Canada. Manitoba, for instance, had a minimum wage board while Alberta had a very simple act which said the minimum wage to be paid women was so much. The Premier quoted instances from Manitoba to show that the board system had done good work. The board in that province appoints a trade board for each particular industry which, after investigation, reports to the wage board its findings. Some twenty investigations had been carried out of late, all of them with satisfaction to both sides.

In the bill presented to the house, the Premier pointed out, provision was made for the creation of a wage board. The board is to consist of five persons, two of whom shall be females, and shall have authority to ascertain and declare what wages are adequate to furnish the necessary cost of living to employees and what are reasonable hours for those employed in occupations, as well as to establish standards of minimum wages and hours of employment.

The board is empowered under the act to make investigation respecting matters appertaining to the employment of women and is given all the powers of a court of King's Bench for this purpose.

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A Round Table Conference with Labor*

Winnipeg Manufacturer Believes that the Time Has Now Arrived when a More Conciliatory Attitude Towards the Demands of Labor Should Be Taken by the Employer and an Honest Endeavour Made at Round Table Conferences to Get at the Solution of the Problems at Issue Between Capital and Labor

By E. PARNELL

Spiers, Parnell Baking Co., Winnipeg, Vice-President, Prairie Provinces Branch, C.M.A.

THERE can be no doubt in any unbiased person's mind that a very serious unrest and discontent exists throughout the world amongst the laboring classes. This unrest and discontent is not of recent birth. As a matter of fact it is of long standing; but has been quietly growing year after year, until to-day, as a result of war conditions, it permeates every country on the face of the earth. It is quite true that it is more acute in some countries than others; but that it exists everywhere there can be no doubt. It has taken on two distinct forms. First, we have the Bolshevist element, who, if they had their way, would assume the reins of power and destroy all our present forms of Government, whether they be democratic or monarchial; who claim that capital has no rights whatever and who would destroy all relations between employer and employee. If their ideas were to prevail the result would be anarchy, confusion and chaos supreme.

Position of the Trade Unionist

There is, however, another class known as the trade unionist who take the position that the present competitive system has had the effect of creating conditions which concentrate huge wealth in the hands of the few while the great mass of humanity barely gets sufficient to exist upon; that the employer under the present system is entirely engrossed in the thought of profits and refuses to pay to his work-people a wage commensurate with the work performed; that the hours of labor are unduly long, the result being to deprive large numbers of people of getting employment in any shape; that the length of hours worked do not allow of sufficient time for recreation and education, the result of which is that the worker has become enslaved, and that the price of all commoditites are, as a result of the demand for profit, unduly high, making even the increased wage of to-day no better than a bare existence. The trade unionist looks upon the employer as his natural enemy and contends that the employer refuses him the right to organize or have any part in the affairs of the business. In other words he claims that the worker is simply a machine and has no rights whatever except to serve the employing class. That it is absolutely imperative that we should at once give heed to this latter class if we are to prevent them from allying themselves with the former, is in my opinion one of the most important problems of the day.

As to whether the claims labor makes are justified or not is not so much the real question, nor would it serve any useful purpose to attempt to debate that phase of the argument. They have made their minds up that such a condition exists and they are, if I judge rightly, determined to have a remedy.

I am, therefore, convinced that the time has now arrived, if not already overdue, when a more conciliatory attitude towards the demands of labor should be taken by the employer and an honest endeavor made at the round table conferences to get a solution of this most vital problem that will, as a minimum, give satisfaction to such a large number of workers that you will be able to, at least, nullify the efforts of the ultra socialistic element if not destroy them entirely. There should not be any difficulty in arranging such conferences as the interests and aims of the two parties should be identical and each of them are absolutely necessary to the other if the success for either is to be secured.

Example of Co-operation

I am well aware that many take the position that there is no common ground that can be found that will provide a remedy and that, therefore, it is futile to attempt to discuss the situation as I suggest. I do not agree with this. As an example take the Minimum Wage Board for Women, of this Province, composed as it is of two labor members, two representing the employers and an independent chairman. This Board has been sitting for about ten months. They have made in the neighborhood of thirty awards in different industries in this city dealing with conditions of work, hours of labor and wages. During all this period of earnest and untiring effort, with many difficulties to overcome, there has not been a division of any kind. All awards have been arrived at to the satisfaction of employer and employee and from the evidence at hand the general public, including labor, are well satisfied. What has been done here could be done in the larger field of male employees if the same tactics were adopted. This brings us to the subjects that could be discussed by such conferences.

The Question of Profits

I am firmly convinced that the present acute situation has largely been brought about by the exceedingly high cost of living and, while wages have in some cases been raised to meet this condition, in the great majority of cases they have not. However, we must also bear in mind that in many cases it has been impossible for the employer to act as he would like to in this matter owing to the severe competition from outside points, the high cost of his raw material and excessively high freight rates. These have left him with such a small margin of profit that the consideration of increasing wages becomes a more serious matter than the amount involved, as it relates to the total cost of production, would appear to warrant. This is particularly true of this Province owing to the eastern competition and the lack of population which deprives the western employer of the volume of business that his fellow business man of the east enjoys, and that allows him to use Western Canada

* The author of this article is acting as chairman of a special committee on industrial relations appointed by the Prairie Provinces Branch. A copy of the article is in the hands of each member of the committee, and will form the text for future discussions. It is published in INDUSTRIAL CANADA as being of interest to the manufacturers of Canada generally.

as a dumping ground for his surplus production, which in many cases is taken advantage of.

I am, therefore, of the opinion that we have arrived practically at the peak point and what appears to be one of the first things which might be considered would be how to so increase our production on the farm and our natural resources such as coal and minerals that we could cheapen the cost of the finished product of both farm and factory to the consumer and yet give both farmer and manufacturer a reasonable return for the services rendered. This, in my opinion, would be the best kind of an increase in wages and more lasting benefits would accrue to all parties.

Then another very serious question should be considered, that is the housing problem. I am firmly convinced that one of the best and surest solutions of strikes and lockouts is to endeavor to make Winnipeg a city of homes owned by their occupants, doing away, as far as possible, with the landlord system. Take the question of rents and how it operates on the working class. A suite in any average apartment house of one bedroom, sitting-room, dining-room and kitchen, will cost, on the average, not less than $40.00 per month including light and gas to cook with, or $480.00 per year. An average house of say five rooms, within reasonable distance of the centre of the city will cost at least $25.00 per month rent. Add to that coal, say six tons, at an average price of $15.00 per ton, $90.00, and two cords of wood at $9.00, or $18.00, making a total of $408.00, and from evidence I have secured I do not think this sum would be sufficient. Then take the average wage of working men at $1,000 per year. You can readily see it is impossible for anything to be saved.

Give the Worker a Home

Can you wonder at discontent under these conditions? Can a workman own his own home in the city? I say, no. Why? Because land values are out of all reason and the total cost of a home suitable to live in, with reasonable modern comforts would cost in interest, insurance and repairs more money than his average wage would possibly allow. I, therefore, believe that the whole housing situation could be considered with results that might be very helpful in reducing the cost to the employee. Give him real home comforts,—a home of his own, and a lot sufficiently large to enable him to grow some of the produce he consumes in his house, which would have the effect of making his present earning value in dollars and cents and go much further and this in turn would mean an increase in his wages or amount earned. This is very necessary when you consider that the balance of $520.00 only allows $173.33 per year for each individual of three persons, or for 365 days 49 cents per day per person. If this same man had a larger family his difficulties would increase accordingly.

Then the question of standardizing wages at their present level, leaving the question of increases to come by way of reductions, as outlined above, could be considered.

The hours of labor is an important question and vitally affects both parties.

The apprenticeship to trades of the youth of our country could be taken up and in this connection the specializing in industry is closely associated and will bear the keenest scrutiny.

The question of the worker having a better knowledge of the business he has engaged in and the difficulties of the employer as well as the worker might be worked out by shop committees or industrial councils, such as the Whitley Report suggests for the British Islands. In this connection profit sharing could be given full consideration.

I am fully convinced that any man willing to work should be guaranteed a minimum wage which would, at least, not go below the subsistence line. This would be considered and further, the question of a trade board or commission, who could deal with the above matters and others as they came up from time to time, including all differences which might arise, and whose decision should be final and binding on all parties, could, I believe, be considered with good results.

In closing, I think there is no better way of doing so than by quoting a few words from one of Lloyd-George's speeches during the recent British Election, which ran as follows:

Great Schemes Ready

"The Government have ready great schemes, necessarily involving a large expenditure of public money, for the purchase of land for soldiers who desire to earn a living in cultivation.

"There will be provision for ex-service men for either:

"Small holdings,
Cottage sites and garden holdings,
Allotments on lease—

according to the choice which they make and the fitness which they show.

Increased production: "You cannot have improved wages and improved conditions of labor all around unless you manage to increase production. The war has demonstrated that this can be done by improved organization. There are new countries to be opened up—countries like Mesopotamia. In addition to that, the Government has schemes for developing the resources of our own country in a way they have never been opened before. I lay great stress on the policy of the Whitley Commission.

Confidence. "There is one condition for the success of all efforts to increase the output of this country—confidence. Bolshevism is the poison of production; Russia proves that.

Labor. "I say to labor; you shall have justice; you shall have fair treatment, a fair share of the amenities of life, and your children shall have equal opportunities with the children of the rich.

Capital. "To capital I say: You shall not be plundered or penalized. Do your duty by those who work for you, and the future is free for all the enterprise or audacity you can give us.

No Sweating

"But there must be equal justice. Labor must have happiness in its heart. We'll put up with no sweating. Labor is to have its just reward.

Profit-sharing. "I will work hard for any scheme of profit-sharing which provides the workman with a real inducement to increase production. There lies our national salvation.

"We want better and ever better machinery, not only to ease the burden of the workman, but to shorten his hours and to increase his wages. That is the way to such prosperity as we have never known.

"Improved housing, health, education and child welfare, rural developments, improvements in transportation system, canals (those in France and Germany have been eye-openers), production of electrical power on a great scale, are all matters which the Government have in mind."

Better Relations Between Capital and Labor

In View of Our Common Foe which Threatens to Destroy all that is Stable and Sound in Our National and Individual Social Life, All Classes of the People Ought to Stand Together—There are Needless and Criminal Divisions which Should be Abolished

By S. R. PARSONS

Ex-President, Canadian Manufacturers Association

SPEAKING last month before the Social Service Convention in Toronto, Mr. S. R. Parsons, ex-President of the Association, had some pertinent comments to make on the relations between capital and labor, the controversy between the manufacturers and the farmers on the tariff question, and other phases of the present political and industrial situation. From his address the following extracts are taken.

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What is Democracy?

"We say that we have been fighting for the sake of democracy. Mr. Balfour stated in Ottawa, "We have staked our last dollar on democracy, and if democracy fails us we are bankrupt indeed." President Wilson's war slogan has been "to make the world safe for democracy."

"In whatever way we may describe it, it leads us to think of some form of human equality. Men, however, are not born equal, physically, mentally, or in heart capacity. The phrase 'equality of opportunity' is, therefore, misleading; there can be no equality of opportunity without equality of endowment. . . . . Some men are giants physically; some are weak. Some have alert minds; some slow. Some are shallow; some deep. Some have broad sympathies; some are narrow and shrivelled. Some have dauntless spirits; some say, 'There is a lion in the streets! I shall be slain.'"

Wherein, then, Does This Equality Exist?

"It exists when we think of our society as a great living, pulsating organism. Just as in any one body there are the various parts all necessary and all working together, not all equally strong and compelling but all essential to the proper working of the whole; in the field of sports not all moves are equally important but all equal in the sense that each one is necessary; in the army there are inequalities of work, pay, and rank but all operations contribute to the one common object; so in society rich and poor, high and low, strong and weak, learned and unlearned, employer and employed ought to co-operate together for the benefit of each and all."

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Erroneous Views on the Tariff

"Statements which appear from time to time in many of our papers that the manufacturers are sheltered behind a 42½ per cent. tariff are quite untrue except here and there. For instance, the duty on farm tractors is 20 per cent. without the war tax. The Order-in-Council permitting tractors to come in free has resulted in enough tractors being imported, so far, to keep 4,000 men employed for a year, which would mean direct and indirect support to 20,000 to 25,000 people. The average regular duty collected on all dutiable goods in Canada for the year ending March 31, 1918, was 21.4 per cent., which is slightly less than the average duty collected on dutiable goods coming into the United States for the year 1918. In the latter country, however, the policy of protection has so built up the manufacturing industries that the United States relies less on imports than is the case in a newer country like Canada. With the addition of the war tax our customs duty, roughly speaking, averages 30 per cent."

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The Farmers and the Tariff

"The farmers in their platform say 'Smash the tariff,' which, if done, I honestly believe would be the means of turning adrift one-half of the people employed in our industrial life in Canada. This is rather a queer method of taking up the after-the-war slack of the labor market. Surely nothing would help the spread of Bolshevism in this country equal to unemployment of hundreds of thousands of our industrial classes. All municipal and housing schemes should be scrapped now if the customs duties are to be abolished. Then, after smashing our industries, the farmers advocate higher taxation on corporations; that is, they want to kill the industry and then they want to tax it after it is dead.

"One of their leaders at a recent convention in Toronto stated that if the manufacturers could not live under free trade we would be well rid of them. They further advocate a tax on unused farming lands. This, I think, is a good proposal but have not studied it enough to know just how much this tax should be or what revenue it would produce. We will likely need it in any case. It is interesting to note that the farmers, themselves, in their platform give no figures along this line. If the taxes were placed very high it would mean undoubtedly a bringing down of the value of all farm lands and the farmers, who have benefited so largely by the turnover of their properties at increasingly higher rates, would suffer in common with others. The principle of this tax is commendable.

"The farmers further state that they desire a graduated income tax. We have now such a tax upon our statute books, and which is being operated, but except here and there it is not likely to apply to farmers. Farmers, as a rule, do not keep books and the assessment and collection of this tax would need an army of workers in a sparsely settled country like Canada. United States Government statistics prove that farmers in the West and middle West have been netting large profits, and yet the *New York Times* is authority for the statement that the income taxes paid by farmers in the last year of available records were less than 1 per cent of the total income taxes. If this is the case and like conditions should apply to Canada, it would mean that the farming community, who it is said make up nearly one-half of our total population, would be paying only 1 per cent. of the total income taxes. This would leave 99 per cent. of such taxes to be paid by all the rest of the population. Farmers thus would be freed from the operations of the tariff for duty, which system now provides a taxation to which all parties contribute, and they would be paying practically nothing under the income tax which they propose."

Industrial Future of Maritime Provinces*

Remarkable Geographical Position of the Provinces by the Sea is Pointed Out—Suggestions Offered Whereby these Provinces Could Take Advantage of Their Location to Develop Trade with Many Parts of the World

By WATSON GRIFFIN
Commercial Intelligence Department, Ottawa

FEW Canadians as yet realize the great natural resources of the Maritime Provinces and the wonderful geographical advantages they possess for world-wide commerce. These provinces have the same geographical relation to the continent of North America that the British Isles have to the continent of Europe. They jut out into the Atlantic far to the east of North America, just as the British Isles lie out in the Atlantic to the west of Europe. The area is nearly as great as that of England and Wales, and if Newfoundland be included the area is a little greater than that of England, Wales and Scotland. Nova Scotia is almost as large as Belgium and Holland combined, which together had over twelve million people when the war began. New Brunswick is almost as large as Scotland. Prince Edward Island might have a population of over three millions, and yet be less densely populated than the Channel Islands of Jersey and Guernsey.

The advantageous geographical situation of the Maritime Provinces of Canada for commercial purposes will be understood when Halifax and St. John, the leading seaports, are compared with Liverpool as regards distances from the leading markets of the world by water routes for full-powered steamships. I shall hand to each of you a copy of a table I have prepared showing the distances. You will note that these ports are nearer to Central America, South America, the West Indies, Australia, New Zealand, Japan and Siberia than Liverpool is. As regards raw materials for manufacture that must be imported, Halifax and St. John are nearer the raw cotton of the Southern States, the cane sugar of the West Indies, the rubber of Brazil and British Guiana, the wool of Australia and New Zealand, and the hides of the Argentine Republic, than Liverpool is. Of course, Liverpool has the advantage of first-class steamship connection with all the leading ports of the world, which St. John and Halifax have not yet secured, and short routes for steamships are of little advantage unless there are steamships running on the routes, but the conditions in this regard are likely to greatly improve at Halifax and St. John in the future.

Have you ever noticed that South America lies out in the Atlantic far to the east of North America. Our Maritime Provinces jutting out eastward from the North American continent are almost in line with the southern continent, and it is a remarkable fact that Halifax, St. John and Sydney are nearer to Brazil and Argentina than New York City. I have found it hard to convince people that these Canadian ports, which are over 2,000 miles nearer to Europe than New Orleans and the Gulf of Mexico ports, are also over five hundred miles nearer to the leading countries of South America and South Africa, for you will note that we have the same advantage over the United States in sailing to Africa that we have in sailing to South America, as the table which I now give you will show:

From Halifax it is 2,485 miles to Liverpool, 3,558 miles to Pernambuco, 6,484 miles to Cape Town.
From St. John it is 2,692 miles to Liverpool, 3,676 miles to Pernambuco, 6,654 miles to Cape Town.
From Sydney harbor it is 2,284 miles to Liverpool, 3,565 miles to Pernambuco, 6,573 miles to Cape Town.
From New Orleans it is 4,528 miles to Liverpool, 4,109 miles to Pernambuco, 7,347 miles to Cape Town.
From Mobile it is 4,466 miles to Liverpool, 4,047 miles to Pernambuco, 7,291 miles to Cape Town.
From Savannah it is 3,596 miles to Liverpool, 3,681 miles to Pernambuco, 6,860 miles to Cape Town.
From Charleston it is 3,502 miles to Liverpool, 3,649 miles to Pernambuco, 6,828 miles to Cape Town.
From Newport News it is 3,204 miles to Liverpool, 3,649 miles to Pernambuco, 6,786 miles to Cape Town.
From Baltimore it is 3,328 miles to Liverpool, 3,772 miles to Pernambuco, 6,912 miles to Cape Town.
From Philadelphia it is 3,216 miles to Liverpool, 3,745 miles to Pernambuco, 6,861 miles to Cape Town.
From New York it is 3,071 miles to Liverpool, 3,698 miles to Pernambuco, 6,786 miles to Cape Town.
Ships going to Brazil and Argentine must round Pernambuco.

You will agree with me that the geographical position of these provinces is remarkably favorable for reaching the markets of the world. Now what is the situation as regards home trade? For seven months of the year large ocean vessels can go from the ports of these provinces to Montreal, the heart of Canada. Do you realize what this should mean to the industries of these provinces? Are you making the most of this advantage? It is a well known fact that water transportation is much cheaper than land transportation, and the bigger the ship the cheaper it is. Why should there not be many big freight ships carrying the goods made in these

Did You Know This?

Have you ever noticed that South America lies out in the Atlantic far to the east of North America? Our Maritime Provinces jutting out eastward from the North American continent are almost in line with the southern continent and it is a remarkable fact that Halifax, St. John and Sydney are nearer to Brazil and Argentine than New York City.

*Address delivered at meeting of Maritime Branch C.M.A., Amherst, N.S., December 11, 1918.

provinces to the greatest distributing centre of Canada? The enlargement of the canals connecting our great lakes and those along the Upper St. Lawrence River, and the construction of the Ottawa and Georgian Bay Canal, will enable you to send your manufactured goods into the heart of Ontario and even lay them down at the docks of Fort William and Port Arthur for transportation to Western Canada.

Take for instance the development of the iron and steel industry. During the fiscal year 1913, which was a normal year altogether unaffected by the war, the imports of iron and steel and manufactures thereof into Canada amounted in value to over $138,000,000. The sum is enormous, but it will immensely increase in the future unless we take steps to further develop our own iron and steel industries. If even one-half of that money could be circulated in these provinces instead of being sent to the United States and other countries it would add immensely to the general prosperity, convert small towns into great cities, and provide a home market for your farmers and fishermen more profitable than any foreign market.

The greater part of the steel manufactures imported into Canada come from the United States and probably largely from the Pittsburg district. Let us compare that great iron and steel centre with Cape Breton. The iron ore used in the Pittsburg district has to be brought from the mines of Northern Michigan and Minnesota by rail to a Lake Superior port and there loaded on vessels, after which it must be carried through Lake Superior, the Sault canal, Lake Huron, Lake St. Clair, the Detroit river and finally through Lake Erie to Cleveland and other lake ports, where it is transferred to railways again to be transported to the furnaces. This makes four handlings of the ore in transportation from the mines to the furnaces.

How the Mileage of St. John and Halifax from the Principal Ports of the World is more Favorable than that of Liverpool

To	From Halifax.	From St. John.	From Liverpool.
Montreal	872	1,116	2,762
New York	599	560	3,071
Pernambuco	3,558	3,676	4,065
Rio Janeiro	4,630	4,748	5,138
Buenos Aires	5,721	5,849	6,232
Kingston, Jamaica	1,810	1,810	4,049
Barbados	1,900	1,955	3,627
Port-of-Spain	2,091	2,123	3,831
Georgetown	2,290	2,345	3,936
Vera Cruz	2,425	2,381	4,823
Havana	1,614	1,570	4,116
Colon	2,308	2,308	4,544
Valparaiso	4,968	4,968	7,204
Melbourne—			
Via Panama	10,289	10,289	12,525
Via Suez	12,428	12,659	11,015
Via Cape Horn	12,899	12,017	13,406
Via Good Hope	12,319	12,488	11,900
Wellington, N.Z.—			
Via Panama	8,829	8,829	11,065
Via Cape Horn	11,439	11,557	11,946
Via Suez	13,803	14,034	12,395
San Francisco—			
Via Panama	5,603	5,603	7,839
Via Cape Horn	13,000	13,118	13,497
Vancouver—			
Via Panama	6,444	6,444	8,680
Yokohama—			
Via Panama	10,018	10,018	12,254
Via Suez	12,490	12,721	11,082
Vladivostock—			
Via Panama	10,754	10,754	12,990
Via Suez	12,710	12,941	11,302
Hong Kong—			
Via Panama	11,732	11,732	13,968
Via Suez	11,060	11,291	9,652
Cape Town	6,484	6,654	6,067
Calcutta—			
Via Panama	14,574	14,574	16,810
Via Suez	9,277	9,508	7,869
Constantinople	4,475	4,706	3,067
Gibraltar	2,685	2,916	1,277
Amsterdam	2,785	3,031	726
Havre	2,565	2,811	512
Montevideo	5,617	5,735	6,123
Antwerp	2,761	3,000	699
Marseilles	3,365	3,596	1,975

The great ore mines of Bell Island are only about four hundred miles from Sydney, and there is deep water all the way with no rail haulage and only one handling of the ore. When the iron and steel is made at Pittsburg, it must be carried 702 miles by rail to reach Montreal. The distance from Cape Breton to Montreal is a little greater, but there is deep water all the way. The cost of transportation should be considerably less.

As regards export trade Pittsburg steel must be hauled by rail almost as far as the distance from Montreal to St. John before it can reach a seaport, and when it gets to the sea it is still hundreds of miles farther from the leading markets of the world than the steel at the Nova Scotia furnaces.

The long railway distance from the Maritime provinces to Western Canada has been a serious handicap and consequently the manufacturers of these provinces have been at a disadvantage in competing with those of Ontario and Quebec for the trade of the rapidly growing West.

In discussing the possibilities of the navigation of Hudson strait and bay the only thought in the West has been that it would be a short route between England and Western Canada, but if navigation of the strait and bay should prove to be safe and certain for even three months of the year, large ships running from St. John and Halifax to Port Nelson, the terminus of the Hudson Bay Railway, now being constructed by the Canadian Government, could lay down goods from Nova Scotia, and New Brunswick, in Western Canada at comparatively low cost for transportation.

Mr. Chairman and Gentlemen, I have been asked by your Secretary to make suggestions as to the best way to utilize the great natural resources of these provinces to bring about industrial development. I have been speaking as Chief of the Commercial Intelligence Service, but I now step down from the platform as a Government official, and step up again as a private citizen of Canada who has a feeling of ownership in every foot of land from Louisburg, in Cape Breton, to Esquimalt in Vancouver Island. It will be understood that in making suggestions for the consideration of this conference, at the request of your secretary, I am expressing my own personal opinion and not speaking as a Government official.

My first suggestion is that Halifax, St. John and Sydney should get together and decide upon a shipping policy, and when they have arrived at an agreement for co-operation they should jointly approach the City of Montreal. At the present stage of Canada's development, when it is so difficult to get ships, there should be no bitterness of rivalry between our ports. The trade of South America offers great opportunities, but your wonderful geographical situation is of no value unless you can have shipping facilities throughout the year. I suggest to you a way to get what you need. Let St. John, Halifax, Sydney, and Montreal co-operate in asking the Government of Canada for a great steamship line to Brazil and the Argentine Republic. From the 15th of May to the 15th of November the ships should run from Montreal, calling at Sydney, Cape Breton, and the Government should establish a good steamship service running between St. John, Halifax and Sydney, making connections with the Montreal line. Adequate terminal facilities could be provided at Sydney to accommodate the trade of the Maritime provinces with South America. From the 16th of November to the 14th of May the steamships should be transferred from the St. Lawrence route to St. John and Halifax, leaving St. John and calling at Halifax and Sydney. I would suggest also that a certain number of freight

ships running from Montreal to England and the continent of Europe should call at Sydney harbor throughout the season of St. Lawrence navigation, and that produce and manufactures of the Maritime provinces should be loaded on steamers at St. John and Halifax and carried to Sydney for transfer to the ships from Montreal. In some cases where full cargoes are available at smaller ports of the Maritime provinces, it may be more economical to send the cargoes direct to Sydney instead of concentrating at St. John and Halifax.

Consider what great distances produce and manufactures of Ontario and the West are carried to Montreal, and the number of handlings before they are placed on board the ocean ships. Note that many lake vessels come down to Montreal and transfer their cargoes there to ocean ships. If I had time to elaborate I think I could satisfy you that a system of economical transfer could be evolved which would enable every part of these provinces to have transportation facilities to the markets of South America, South Africa and Europe. Such a service by creating business would pave the way for something better.

There is a movement in England which appears to have the endorsation of eminent engineers to convert coal into electricity at the mines and carry the power by wire instead of transporting the coal. It is claimed that the cost of power can be greatly reduced and that there will be an enormous saving of coal, while valuable by-products may be produced. My second suggestion for the consideration of this conference is that the Governments of Nova Scotia and New Brunswick should follow the example of the Ontario Government in establishing the Hydro-Electric Power Commission under a system by which the Provincial Government co-operates with the municipalities of the province in the generation and distribution of power. You have not such great water powers as Ontario, but you have coal, which can be converted into electricity for general distribution by wire. I do not know whether power could be economically distributed to New Brunswick municipalities from Nova Scotia mines, but the coal of the Grand Lake district can be utilized for that province.

Nova Scotia has been said to have more coal to the square inch than any other part of America, and yet you are paying high prices for coal in nearly all the cities and towns of the province. Either in the way I have proposed or in some other way the Provincial Government should take energetic action to secure cheap power for every town in the province.

A Reconstruction Programme for Italy

Proposals of the Italian Superior Labor Council

(From the "Monthly Labor Review")

THE permanent committee of the Superior Labor Council of Italy presented recently its report on the most important steps to be taken in the transition period. Its proposals may be summarized as follows:

1. The increase of national production is the basis of all preparation for the economic reconstruction of the country in the transition period, and for this are required: (*a*) The co-ordination of all national energies; (b) the financial policy which realizes the difficulties inseparable from the abnormal war conditions; (*c*) the prompt carrying out of necessary public works; (*d*) the careful transformation of war industries into peace industries; (*e*) the constitution of a domain of public lands; (*f*) the regulation of emigration of workers.

2. Legislation is demanded for the satisfactory protection of labor, in addition to health measures, for the development of co-operation in every form, and for the welfare generally of working classes. Every step should be taken to raise the economic and political status of labor which must have a direct share in the Government and in production, thus acquiring personal interests in the country and the nation as a whole.

A scheme of general and technical education, liberally supported, should form the basis of a programme of intensive production and social legislation.

3. The State must adopt an industrial and commercial policy which, unshackled by adherence to any system of protection to the prejudice of the consumer, will safeguard production in the interests of consumers, towards which end powerful assistance can be lent by co-operation.

4. The representatives of capital and labor ought to be allowed to exercise direct influence upon transition economics.

The Superior Labor Council recognizes the importance of a good supply of raw materials after the war, and since that supply should be provided by the State, calls the attention of the Government to the urgency of the programme. As to agriculture, the council expresses the following wishes.

1. That a proportion of the munition factories ought to be devoted to the production of nitrates as fertilizers, using the atmosphere as the source of nitrogen, and to the manufacture of agricultural machinery, more especially motor plows, rendered so necessary since the war, owing to the shortage of draft animals.

2. That in order to encourage and stimulate the growth of foodstuffs at home premiums should be offered to the most successful cultivators of cereals.

3. That any draft animals in excess of the army requirements should be allotted to agriculturists direct.

4. That home colonization be promoted by taking measures to stamp out malaria and extending the laws for the cultivation of unpopulated parts of Italy, and that where necessary, new villages, aqueducts, etc., be constructed.

The idea of a large domain of public lands should be developed and the extensive cultivation of such domain be encouraged by subsidies and loans on easy terms. For the execution of these plans, the council considers it will be necessary to pass social agrarian laws by which the public lands may be granted to co-operative societies of workers or to individuals. Legislation also will be desirable to secure the interests of the small proprietors. A reform in the civil code is required to remove the glaring contrasts between the rights of ownership and the ultimate interests of the community, and no delay in carrying out operations necessary for the development of agriculture should be caused through the opposition of individual proprietors.

In regard to this question, the council advocates the following measures:

1. A vigorous policy should be adopted to carry out forth with the most urgent works—highways, railways, waterways, buildings, especially schools, etc.

2. Systematic methods should be initiated for constructing in the country itself the largest possible amount of what is required for the public services—ships, engines, tractors, railroad cars, etc.

3. Encouragement should be offered to all hydroelectrical works for production of power for traction, illumination, etc. Special attention should be devoted to the fullest utilization of mountain streams for power purposes and irrigation.

No Danger of a Prolonged Depression

When We Consider the Development and Progress of Canada during the Past Quarter of a Century and Remember How we Have Overcome What at Times Seemed Almost Insurmountable Objects, we are Warranted in Looking to the Future with Confidence

By LT. COL. THOMAS CANTLEY

Chairman of the Board of Directors, Nova Scotia Steel & Coal Co., Limited

WHAT the effect of the war's termination will be on our industries and how it will affect the manufacturing and economic fabric of the Dominion is not a question easily answered. Possibly the early results will be to create a waiting condition. We are told by some that, outside of food, the average consumer will purchase only for immediate requirements—that the manufacturer, in most lines, will only produce what is necessary to even up his stock, expecting that his raw materials will gradually shrink back to the former normal prices. Many trades now doing a prosperous business will find their sales reduced, and their stock depreciating from month to month, causing possibly some failures, among those keeping a large stock, who may have assumed that present inflated prices would continue.

With regard to the iron and steel industry, there are several basic facts which lead to our assuming that the production of steel will be vigorously prosecuted for some years.

During the progress of the war the export of steel in the shape of munitions and other war material has been of large volume, and, of course, this market is now practically closed. The furnaces and mills will return to *ante-bellum* uses and methods. The law of supply and demand will again control. There will soon be no restrictions in prices nor anything to prevent their settling down to a lower basis, depending upon circumstances. Cost of production probably will, in the course of time, be reduced, though not to former levels. Prices will be reasonable. No one in the long run is benefited by unreasonably high or low prices. This has been tested in many past periods in our history.

Canada's Domestic Requirements

For the three years previous to the war Canada imported more than one-half the total quantity of steel consumed in the Dominion. In other words, in no recent pre-war year were Canadian furnaces able to produce one-half the Dominion's requirements, and while it is quite true that an increase in production has been brought about within the last four years, the percentage of Canada's total requirements of steel produced by itself within the last four years has been less than one-half, and in some years but little over one-third.

That this country's steel requirements not only during the immediate future, but for the next decade are likely to be exceedingly great is not doubtful, but to our mind, a definite certainty. The railways of Canada, due to their financial condition, which precluded their making the necessary replacements, betterments and expansions, even if the steel for this was available, made purchases impossible. It is probably not overstating the fact to say that most of the railway mileage in Canada, with the possible exception of some portions of the Canadian Government railways, and the Canadian Pacific are in a poorer physical condition than they have been at any time for the past twenty years. The Transcontinental and Canadian Northern systems have really never been completed, and have neither the motive power nor the car equipment in any way commensurate with their mileage. Both these transcontinental systems are but single through lines, and to these must soon be added short branch feeders, running back on, roughly, right angles to the main lines.

It should not be forgotten that a year hence the Dominion Steel Corporation will be in a position to supply Canada with practically all the steel plates required for shipbuilding, structural and other work, our requirements for which in the past were met principally by the United States. In pre-war days the Diminion Steel Corporation's ingot production was fully utilized without any of it being put into plate, and just in proportion as the plate mill tonnage increases so will the production of other Doiminon lines, such as wire rods, etc., be diminished, which will leave a wider market for these products for the other Nova Scotia mills.

Demand for Machine Tools

Then, again, a heavy demand for machine tools is expected in foreign countries, including all the belligerent nations. Large orders for equipment have been and will be received from Belgium and France, and there should later be a very great demand for agricultural implements.

The broad fact, however, remains that the domestic production of iron and steel is to-day less than one-half the country's normal requirements. The second is that the country's requirements during the next few years will be abnormal, and greatly in excess of past requirements, and from these premises the conclusion is evident.

Such doubts as we may have as to the future relate to the transition period. For there are inevitable difficulties about the transfer of great bodies of men from the army and war industries, where their services produce nothing for the public market, back to the peace industries where everything they produce must be absorbed and taken off the market by the public demand. There must, therefore, be a general readjustment of trading relations, or, in other words, of wages and prices, and that is a process that takes time, and one that must work itself out.

Outlook for Wages

What will happen to wages? Some readjustments must take place. War wages cannot prevail in peace manufacture. Perhaps the most we can hope for in this direction is that the readjustment will be gradual, extended over a considerable period of time, influenced by a falling in the cost of living, and be so conducted that there will be a minimum hardship to all concerned.

In the matter of coal, it may be accepted that the demand for a large tonnage will continue. It will be remembered that, during the past three years, the supply has been unequal to the demand, and that very little, indeed, during the past year, no coal has been shipped to the St. Lawrence market. The coal mines have been handicapped by shortage of skilled men and inadequate transportation. A large number of skilled miners will, of course, gradually return to the mines, after participating in the great war, as so many of them have done, but it will take a considerable time to get these

men actually producing coal, and we are not sanguine as to a greatly increased output of this commodity for some time.

Mining, however, must be increased to supply the growing manufacturing requirements, to meet the greatly increased demand for bunker coal, and to help regain the Montreal market, for the past three years lost to Nova Scotia.

With regard to shipbuilding, it now looks evident that for two or three years after the conclusion of peace, steam shipping will be comparatively scarce and freights high, which means that ships will be profitable investments, but with a return to normal conditions, competition will once more become an ever increasing factor. That steel shipbuilding in the Dominion, particularly in the Maritime Provinces, will continue and become a permanent industry is practically assured. It is unlikely, of course, that wooden vessels will be built at the present output after the abnormal demand for ships has passed. Steel steam freighters, and steel steam trawlers should be built in larger numbers, provided there is the requisite Government encouragement both as regards transport conditions and fishing.

In the erection of a plate mill in Sydney, capable of producing the largest size plates required in ship construction, we have a decided acquisition to the rounding out of this industry.

Under the pressure of war needs there has been a development of knowledge and of methods in industry which will permanenty increase production, and which will be of great advantage in the future.

There should be no danger in Canada of a prolonged depression. Our country is rich in natural resources; our prospects are bright; our opportunities of success are greater than ever before. There may, of course, be a period of quiet, but we may look toward the future with confidence. Indeed, when we consider the development and progress of Canada during the past quarter of a century, and remember how we have overcome what, at times, seemed almost unsurmountable obstacles, remembering also the energy of a virile population, the courage and enterprise of our business and manufacturing leaders, the fertility of our soil, the great increase in transportation facilities, which is soon to be supplemented by an adequate ocean steamship service, all warrant us in looking with confidence to greater progress in the next decade than anything we have experienced in pre-war days.

In most elaborate form the Border Cities' Chamber of Commerce is circulating a resolution recently passed, urging the Dominion Government to appoint immediately a permanent commission to promote the expansion of the general trade of Canada. The resolution points out the importance of an export trade to Canada; the ability of Canadian manufacturers to produce a large variety of good goods; and the inadequacy of the Dominion Department of Trade and Commerce to meet the needs of the situation.

The document also contains a message from the Border Cities, urging the advantages of this section of Canada as a site for factories. It is beautifully printed on parchment and, measuring fully 13 x 20 inches, is an arresting piece of advertising matter.

FOREIGN TRADE OF CANADA

(Comparison 1916, 1917 and 1918.)

IMPORTATIONS.

	Month of December.			Nine Months Ending December.		
	1916.	1917.	1918.	1916.	1917.	1918.
Dutiable Goods	$38,177,116	$36,363,034	$39,254,939	$330,791,068	$426,719,371	$395,515,165
Free Goods	29,723,418	25,271,628	34,086,326	271,850,406	335,662,916	311,290,175
Grand Total	$67,900,534	$61,634,662	$73,341,265	$602,641,474	$762,382,287	$706,805,340
Duty Collected	$12,085,082	$10,860,805	$11,972,104	$106,378,729	$125,796,830	$119,057,836

EXPORTATIONS.

Month of December.

	1916		1917		1918	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic	Foreign.
The Mine	$8,457,039	$42,446	$5,026,041	$152,423	$5,626,697	$305,120
The Fisheries	2,630,149	106,449	3,016,059	65,357	3,712,367	96,878
The Forest	4,262,423	9,409	3,836,909	6,147	4,991,252	768
Animals and their Produce	12,882,235	768,867	11,433,910	336,543	21,819,189	701,174
Agricultural Products	47,213,553	804,883	91,216,447	259,232	38,871,623	152,340
Manufactures	54,261,266	664,372	33,635,790	1,367,510	32,266,381	1,302,684
Miscellaneous	330,509	100,405	246,763	287,917	686,892	45,157
Total Merchandise	$130,037,174	$2,496,831	$148,411,919	$2,475,129	$107,974,401	$2,654,121

EXPORTATIONS.

Nine Months Ending December.

	1916		1917		1918	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$63,725,560	$202,715	$55,498,616	$702,985	$57,446,439	$2,577,989
The Fisheries	18,075,556	171,412	21,510,180	340,518	22,485,801	503,320
The Forest	46,138,448	304,987	42,512,114	51,103	56,048,614	38,621
Animals and their Produce	93,586,906	3,916,500	136,353,322	4,857,670	140,017,573	3,971,179
Agricultural Products	317,451,445	5,130,017	475,338,003	9,179,195	228,149,278	3,061,490
Manufactures	317,841,414	6,163,671	522 963,430	18,420,270	438,954,606	10,251,197
Miscellaneous	4,810,484	1,135,660	3,509,235	1,793,083	4,172,945	1,522,333
Total Merchandise	$861,629,813	$17,024,962	$1,257,684,900	$35,344,824	$947,275,356	$21,926,129

The United Kingdom's Import Restrictions

The Latest Available Information Received by the Tariff Department with Respect to the Restrictions on Imports Imposed by the British Government—Prohibited List Subject to Relief by Special License—Procedure Necessary to Secure Such Licenses

Published by The Tariff Department

THE United Kingdom from time to time, as war measures, listed various commodities as being prohibited from importation except under license. According to the information furnished to us from the Ottawa authorities the complete list of such restricted imports down to the 8th November, 1918, follows:—

Abrasive wheels.
Aerated, mineral and table waters.
Aluminium, manufactures of.
Aluminium powder.
Animals, wild.
Antimony, ore; antimony, crude and regulus; and antimony sulphide.
Antimony, ware.
Apparel, not waterproofed.
Art, works of.
Automatic machines for the retail sale of any article.
Bacon.
Baskets and basketware other than bamboo.
Baskets and basketware of bamboo.
Baths of metal.
Beer.
Binder or reaper twine.
Birds, live, other than poultry and game.
Bladders, casings and sausage skins.
Bone, horn, ivory and celluloid, manufactures of.
Boots and shoes of leather, and materials used for the manufacture thereof.
Boots, shoes and slippers of all materials.
Brandy.
Brass rod and brass wire.
Brislings, herrings, sprats and mousses, tinned, in oil or tomato or other dressing.
Brooms and brushes.
Bulbs, flower roots, plants, trees and shrubs.
Butter.
Canes, all descriptions.
Carbons for arc lamps.
Carbons for searchlights.
Carpets and rugs of all descriptions not otherwise prohibited.
Carpet sweepers.
Cartridges of all kinds, and parts thereof.
Cash registers.
Ceassia lignea.
Cement.
Cheese.
Chinaware, earthenware and pottery.
Clocks and parts thereof.
Cloisonne wares.
Cocoa, preparations of.
Cocoa, raw.
Coffee.
Cotton hosiery, cotton lace, and articles thereof.
Cotton yarn, cotton piece goods, and cotton manufactures of all kinds except hosiery and lace.
Crabs, prawns, shrimps and oysters, canned.
Curios.
Cutlery.
Cycles, other than motor cycles.
Diatomite or infusorial earth.
Electrical motors up to one-half horse power.
Electrical motors over one-half horse power.
Electric dry cells and carbons therefor.
Electric hand-lamps and torches.
Electric meters.
Embroidery and needlework.
Fancy goods, known as Paris goods.
Fatty acids.
Feathers, ornamental and down.
Fibre, flaxseed for sewing.
Fire extinguishers.
Flowers, artificial.
Flowers, fresh.
Fruit (canned, bottled, dried and preserved, except currants).
Fruit, raw, of all descriptions (except lemons and bitter oranges) and almonds and nuts used as fruit.
Furniture, manufactured joinery, and other wood manufactures.
Fuses, fuse components and parts.
Glass, window and sheet, plate and tableware.
Glass, other manufactures.
Gloves.
Gold, manufactured or unmanufactured, including gold coin and articles consisting partly of or containing gold (except gold consigned for delivery at, and sale to the Bank of England).
Gum, Copal.
Gum, Kauri.
Guns, carbines and rifles of all kinds.
Hams.
Hardware and holloware.
Hats and bonnets.
Hides, wet and dry.
Hops.
Horns and hoofs.
Ice.
Incandescent gas mantles.
Ivory, vegetable.
Jewellery of all descriptions.
Jute, raw.
Lacquered wares.
Lard (other than neutral lard).
Lawn-mowers.
Leather dressed and undressed.
Leather, manufactures of, other than belting, boots and shoes and gloves.
Linen yarns and manufactures of.
Lobsters, canned.
Machinery, agricultural and dairy.
Machinery, driven by power and suitable for use in cutting, working, or operating on wood, including sawing machines of all descriptions, general joiners; mortise, tenon and boring machines; lathes and rounding machines, box and cask making machines and all machine accessory thereto; scraping and sand-papering machines; wheelwright machinery; firewood making and bundling machinery, wood, wool fibre and pulp machinery, saw sharpening and setting machines, saw stretches and brazing apparatus, all machines for grinding, planing or moulding irons.
Magnetos.
Matches.
Mats and matting.
Measuring tapes and rules of all descriptions, including verniers.
Micrometers.
Molasses and invert sugar and all other sugars and extracts from sugar which cannot be completely tested by the polariscope and on which Customs duty is not otherwise charged.
Mops.
Motor spirits (including aviation spirit) kerosene (including white spirit), gas oil, fuel oil and distillates from which any of the preceding can be produced.
Moss litter.
Motor cars, chassis, motor cycles and parts and accessories of motor cars and motor cycles (other than tyres).
Musical instruments (including gramophones and pianolas and other similar instruments) and accessories and component parts and records therefor.
Oilcloth.
Oleostearine and tallow.
Olive oil.
Painters' colors and pigments.
Pens, penholders, pencils and all other stationery of which the importation is not already prohibited.
Perfumery and toilet preparations.
Photographic apparatus.
Pictures, prints, engravings, photographs and maps.
Pimentos.
Plaiting, all descriptions.
Plated and gilt wares.
Quails, live.
Rattans and malacca canes.
Red prussiate of potash.
Revolvers, and pistols.
Rubber, manufactures of.
Rum.
Salmon, canned.
Salt.
Sewing machines.
Silk and artificial silk, manufactures of, not including yarns.
Silver, manufactures of, other than silver watches and watch cases.
Skins and furs, manufactures of.
Spectacles and eyeglasses, complete.
Soap.
Soya beans.
Spirits and strong waters, except brandy and rum.
Stereoscopes.
Stones and slates.
Stoves and ranges.
Straw envelopes for bottles.
Straw plaiting.
Sugar, articles and preparations containing, used for food (except condensed milk).
Tanning extracts, the following, viz.:
Chestnut, hemlock, mangrove, oak and quebracho.
Tea.
Time recording instruments of all kinds, and movements and parts thereof.
Tobacco, unmanufactured and manufactured (including cigars and cigarettes).
Tomatoes.
Toys, games and playing cards.
Typewriters.
Vacuum cleaners.
Vegetables, canned, bottled, dried and preserved, and pickles.
Vegetables in brine.
Verniers.
Watches and parts thereof.
Weighing machines, scales and balances of all descriptions.
Wine.
Woods, the following, viz.:
Hardwoods, furniture woods and veneers.
Wood manufactures (except lacquered wares).
All other woods.
Wood flour.
Woollen and worsted manufactures of all kinds except yarns.
Wringers and mangles.
Yeast.

On the 21st of November, 1918, the import restrictions were temporarily removed in respect to fruit, canned, bottled and preserved, and soap.

On the 5th day of December, 1918, the restrictions were removed in respect to mats and matting and plaiting of all descriptions, including plaiting of straw.

On December 9th, the import restrictions of Great Britain were temporarily suspended in respect to the following commodities:—

Aerated waters.
Almonds.
Aluminium, manufactures of.
Aluminium powder.
Apparel, not waterproofed.
Apples, raw only, not canned or dried.
Art, works of.
Bananas.
Baskets, basketware of all kinds.
Baths of metal.
Birds, live.
Bonnets.
Brooms.
Brushes.
Cement.
Cocoa, raw.
Diatomite or infusorial earth.
Engravings.
Eyeglasses, complete (not containing gold).
Fatty acids.
Fire extinguishers.
Flowers, fresh.
Furs, raw and manufactures of (when not hides or leather).
Gilt wares.
Gloves of leather.
Hats.
Hoofs.
Horns.
Incandescent gas mantles.
Ivory, vegetable.
Lawn-mowers.
Linen yarns, and manufactures of.
Mangles.
Methyl alcohol.
Mineral and table waters (unsweetened).
Mops.
Nuts, fruit, not oil crushing or metal.
Oilcloth.
Perfume.
Photographic apparatus.
Photographs.
Pictures; prints.
Platedware.
Ranges.
Salt.
Scales and balances of all descriptions.
Sewing machines.
Skins, raw and manufactures of, when not hides or leather.
Soap.
Spectacles, complete (not containing gold).
Stereoscopes.
Stoves.
Straw envelopes for bottles.
Sugar cane.
Time recording instruments of all kinds, and movements and parts thereof (not including watches).
Tabulating machines.
Toilet preparations (not containing spirits).
Vacuum cleaners.
Weighing machines.
Wood flour.
Wringers.

On the 9th day of January the British import restrictions were temporarily lifted in respect to the following commodities:

All machinery driven by power and suitable for use in cutting, working or operating on wood, including sawing machines of all descriptions, general joiners, mortise, tenon and boring machines, lathes and rounding machines, box and cask making machines, and all machinery accessory thereto, scraping and sand-papering machines, wheelwright machinery, firewood making and bundling machinery, wood, wool, fibre and pulp machinery, saw sharpening and setting machines, saw stretchers and brazing apparatus, all machines for grinding, planing or moulding irons.
All machine tools and machinery driven by power and suitable for use in cutting, stamping, or working metal, including lathes, milling machines, drilling machines, planers, shapers, screw machines, chucking machines, boring machines, slotting machines, grinding machines, boring and turning mills, power presses, punching and shearing machines, forging machines, cutting-off machines, gear cutting machines, centering machines.
Leather gloves.
Coffee.
Tobacco, manufactured and unmanufactured, including cigars and cigarettes.

In respect to the foregoing, notice was issued on the 30th of January, 1919, that most of the goods exempted from the British import restrictions on December 5th, December 9th and January 9th, would be replaced on the prohibited imports list on and after March 1st. It appears the following goods represent exceptions which for the present will remain relieved from the British import restrictions:—

Gloves of leather.
Incandescent gas mantles.
Toilet preparations, not containing spirits.
Leather, gloves.
Birds, live.
Brooms.
Brushes.
Flowers, fresh.
Cartridges, of all kinds and parts thereof.
Electrotypes.

The following goods are temporarily removed from the prohibited imports list of the United Kingdom, until July 1st, 1919:

Aerated mineral and table waters, unsweetened.
Almonds.
Apples.
Art, works of.
Bananas.
Bladders, casings and sausage skins.
Cocoa, raw.
Coffee.
Fruit from all sources, canned, bottled or preserved.
Gum, Copal.
Gum, Kauri.
Hides, wet and dry.
Horns and hoofs.
Ivory, vegetable.
Marble.
Nuts.
Onions.
Pimentos.
Rum.
Sugar cane.
Timber (dunnage used as temporary ships' fittings and not entered on bills of lading)
Tobacco, unmanufactured and manufactured, including cigars and cigarettes.
Wood flour, cassia and lignea.

It should be noted that the United Kingdom's prohibited list is subject to relief by special license. The customer in the United Kingdom should apply to the Controller, Department of Import Restrictions, 22 Carlisle Place, London, S.W. 1, England, for import license. The Canadian Trade Mission, 1 Regent Street, London, S.W., England, will give assistance to United Kingdom importers who are applying for licences.

Other Prohibitions on Imports

Applications in respect of the following articles, the importation of which is also prohibited, should be made to the authority shown against each:—

Paper, materials for the manufacture of, including wood pulp, esparto grass and linen and cotton rags.	Royal Commission on Paper, Central House, Kingsway, London, W.C. 2, England.
Paper and cardboard (including strawboard, pasteboard, millboard and wood pulp board), and manufactures of paper and cardboard (except engravings, etchings, photographs, pictures, picture postcards, silk embroidered postcards —licenses for which must be obtained from the Controller, Board of Trade, Department of Import Restrictions, 22 Carlisle Place, London, S.W.1.), books, printed and other printed matter, including printed posters, and daily, weekly and other periodical publications, imported otherwise than in single copies through the post.	Royal Commission on Paper, Central House, Kingsway, London, W.C. 2, England.
All bonds, debentures, stock or share certificates, scrip and other documents of title relating to any stocks, shares, or other securities; with the exception of matured bonds redeemable in the United Kingdom and coupons falling due for payment in the United Kingdom.	The Secretary, The Treasury, London, S.W. 1, London, England.
Diamonds unset	The Controller, Foreign Trade Department Lancaster House, St. James, London, S.W. 1, England.
Sugar	The Royal Commission on the Sugar Supply, 14 Great Smith Street, London, S.W. 1, England.
Cocaine and opium	The Under-Secretary of State, Home Office, Whitehall. London, S.W. 1, England.

Transportation Matters

Stop-Off of Lumber

Stop-Off Charge Regulations on Lumber to be Revised by Carriers East of Fort William

The carriers east of Fort William, Port Arthur, etc., have submitted a draft of proposed regulations in connection with the stop-off of lumber for dressing, kiln-drying, re-sawing or sorting. The chief changes proposed are as follows:

1. An increase in the stop-off charge from the present one cent to two cents per 100 pounds, and in the minimum charge per car from the present $5.00 to $8.00.
2. Inclusion of a list of what will be considered by the railways as hardwood and softwood.
3. Inclusion of note that the arrangements will apply only on lumber and not on other commodities shown in the lumber tariffs.
4. Bill of lading requirements making it necessary to show number of feet and kind of lumber, that is, spruce, maple or birch, etc.
5. Rearrangement of regulations under heading of "Dressing, kiln-drying, resawing or sorting" as shown in Regulation "B."

A circular has been sent to interested members asking for their views in connection with this matter. As we have only received a few replies so far, we would request that those members who have received our circular should give it immediate attention.

Sugar Rates

Judgment Has Been Reserved in the Case of the Interior Refineries' Appeal Against Coast Refineries

The special commodity rates on refined sugar were cancelled by Order-in-Council P.C. 1863, and the regular fifth class rates applied. On complaint of certain of the refineries located on the Atlantic and Pacific Coasts, the Board recommended to the Government, after a hearing, that these refineries should be given special consideration. The Government accordingly issued Order-in-Council P.C. 2080, providing for special commodity rates from Halifax, Dartmouth and St. John to Montreal and points in Ontario, and from Vancouver to points in Western Canada, leaving the refineries located at Montreal, Chatham, Wallaceburg, Kitchener, etc., on the regular fifth class basis. These interior refineries protested against this adjustment, and a hearing was held in Ottawa to take evidence in connection therewith. Judgment was reserved.

Express Rates

Sittings of Railway Board Held at Toronto, Ottawa and Montreal and Evidence Taken on Proposed Increase

Evidence in connection with this question was taken by the Board of Railway Commissioners at sittings held in Toronto, Ottawa and Montreal, from which it would appear that the general average increase over present rates per hundred pounds of 37 per cent. east of Sudbury, and 25 per cent. west thereof, is not indicative of the actual increases.

On general merchandise the actual increase, according to statements filed, ranges from 40 per cent. to 80 per cent. The variation in the increase is accounted for by the difference in the weight of shipments, points to which shipped, etc.

The fish traffic shows an enormous increase, ranging from 75 per cent. to 200 per cent. The great increase on this traffic is due to the fact that the Express Companies propose to cancel the special tariffs on fish and substitute the regular second class rates.

On ale, beer, aerated and mineral waters now taking what is known as "Scale K" rates, the increase ranges from 135 per cent. to 150 per cent. This is due to the fact that it is proposed to cancel this scale entirely and apply the new merchandise or first-class rates.

Cream rates also show an increase of over 100 per cent. This increase is due to the proposal of the carriers to cancel the special rates on cream, applying the proposed second-class rates.

It has been intimated by a number of the parties appearing on behalf of shippers that a straight percentage increase would be more acceptable than the changes proposed by the application, which contemplates a disturbance of the basis.

Credit Arrangements

Modifications Made in the Railway War Board's Proposals on this Important Matter

This matter was dealt with in a former issue. At that time the Canadian Railway War Board proposed to discontinue the present credit arrangements, substituting therefor a credit period of ninety-six hours together with the requirement that a surety bond be supplied to cover the amount of freight charges involved in the credit.

A meeting was held on December 20th between representatives of the shippers, and carriers and the General Secretary of the Canadian Railway War Board, at which time the proposal was thoroughly discussed. As a result the Canadian Railway War Board postponed their Circular No. 86 until March 1st, and promised to send us a re-draft of the circular modifying and amplifying same. The shippers promised to form a committee and draw up regulations which they considered should be adopted. Sometime after this meeting the Canadian Railway War Board sent us Supplement No. 3 to Circular No. 86 containing revisions in accordance with their promise. A few days afterwards it was intimated that certain other changes would be made. The matter, therefore, was left in abeyance until we received the official announcement of these changes. This came to hand on February 5th. An examination of the revised circular, known as No. 97, and dated Montreal, February 3rd, showed the following modifications:

1. Extension of the credit period to seven days.
2. Allowance of an individual surety bond or bank guarantee in lieu of a corporate surety company bond. The individual surety bond, however, must be given by a person not connected with the business for which credit is requested.
3. Bonds may be for individual consignments or blanket bonds to cover all consignments for a given period. One bond will also be taken covering two or more points.
4. The credit period is to be computed from time shipper is notified of amount due carrier on "prepaid" shipments and from time consignee is advised of charges due or time goods were made available for delivery (whichever may be later) of "collect" shipments. Such notices when mailed held to have been received at seven a.m. following date of mailing.

Certain modifications have also been made in regard to payment of disputed charges.

Local Switching

Progress of the Movement to Advance Local Switching Rates in Eastern Canada

The question of an increase in local switching rates in Eastern Canada has been before the members since early in November.

The carriers submitted to the Board of Railway Commissioners, under date of January 9th, a proposition to apply the line haul charges on traffic handled in local switching movements to take the place of their first proposal, as outlined in the December issue. This, of course, meant a material increase in rates for the service.

At a meeting held on January 13th the carriers stated that they did not intend the line haul charges to apply

on raw materials moving between industries, but would make special rates to cover such movements. Since that time meetings have been held in Hamilton, Toronto and Montreal, at which time particulars of movements, such as that outlined, have been supplied to the carriers by interested manufacturers. Carriers have stated that they would apply to these movements the rates mentioned in their first proposal for movements between private sidings, and one cent additional for movements from private sidings to team tracks and vice versa.

A hearing was held before the Board of Railway Commissioners in Toronto on February 5th, at which time the question of charging line haul rates for any local switching movement was opposed by the Association. The Chief Commissioner, in summing up, directed that the carriers file with the Board and those interested, proof copies of just what rates and movements would be provided, and that they should disregard the principle of line haul rates, basing their rates on the present system.

Western Sittings

Board of Railway Commissioners Will Hold Series of Hearings in Western Canadian Cities

The Board of Railway Commissioners will hold sittings in the West to hear various complaints, including Proposed Increase in Milling-in-Transit Charge and General Increase in Express Rates as follows:

Vancouver, B.C., Court House	Feb. 14, 1919, 10 a.m.
Victoria, B.C., City Hall	Feb. 17, 1919, 10 a.m.
Vernon, B.C., City Hall	Feb. 19, 1919, 2 p.m.
Nelson, B.C., City Hall	Feb. 21, 1919, 10 a.m.
Lethbridge, Alta., City Hall or Board of Trade	Feb. 24, 1919, 10 a.m.
Calgary, Alta., City Hall	Feb. 25, 1919, 10 a.m.
Edmonton, Alta., Court House	Feb. 26, 1919, 10 a.m.
Saskatoon, Sask., City Hall	Feb. 26, 1919, 10 a.m.
Regina, Sask., City Hall	Mar. 1, 1919, 10 a.m.
Winnipeg, Man., City Hall	Mar. 3, 1919, 10 a.m.
Fort William, Ont., City Hall	Mar. 5, 1919, 10 a.m.
Sudbury, Ont., Court House	Mar. 7, 1919, 10 a.m.

Steamship Services

Important Information Regarding Rates to United Kingdom Ports and other Countries

United Kingdom Ports.—In the latter part of January announcement was made to the effect that rates from North Atlantic ports to United Kingdom ports had been reduced to $1.00 per hundred pounds and 50 cents per cubic foot. Effective February 1st the allotment of space for commercial traffic to these ports was increased to 30 per cent. of the space on each vessel.

Australia and New Zealand.—Current quotations from Atlantic ports are as follows:

Rough general cargo	$25.00	ton wt. or meas.
Fine general cargo	30.00	" "
Dead weight cargo, not packed...	15.00	"
Dead weight cargo, packed	18.00	"

These rates subject to change without notice.

South Africa.—The rates quoted to Capetown for March sailings per ton are $26.50 general cargo and $19.50 iron and steel. The s.s. *Melville* will arrive at St. John about Feb. 21, sailing about March 1.

West Indies.—The General Agent for Canada of the Royal Mail Steam Packet Company, has advised that the pre-war service from St. John and Halifax to West Indian ports has been fully restored. It is rather difficult to quote specific rates as different commodities are given different rates. However, there are general rates covering commodities not provided with specific rates, as follows:

	Per Cubic Ft.	Per 100 lbs.
To Bermuda	20c.	26c.
To Trinidad, Barbados, Demerara	26c.	65c.
To St. Kitts, Antigua, Montserrat, Dominico, St. Lucia, St. Vincent and Granada	32c.	65c.

These rates, of course, are subject to change without notice.

Early Closing of Freight Sheds

Railway War Board Makes Regulations Regarding the Opening and Closing of Railway Freight Sheds

The Canadian Railway War Board has issued Circular No. 94, providing that the opening and closing hours of railway freight sheds in Canada shall be as follows:

Monday to Friday, inclusive, 7.30 a.m. and 5 p.m., respectively.
Saturdays, 7.30 a.m. and 1 p.m., respectively.

Owing to certain local conditions at some points it has been found necessary to make the hours as follows:

Monday to Friday, inclusive, 8 a.m. and 5.30 p.m., respectively.
Saturdays 8 a.m. and 1.30 p.m., respectively.

Agents have been instructed in regard to this matter, and provision has been made at the points where the special arrangements have been made.

Milling-in-Transit Charge

The proposal to increase the charge for stop-off on grain, milled-in-transit will come up before the Board of Railway Commissioners at Winnipeg on March 3rd, at which time the Association will be represented by Mr. J. E. Walsh, General Manager, as well as certain of the milling interests.

Unauthorized Solicitation

People Canvassing for Advertisements for a Letter Carriers' Publication

Members of the Association are warned that several persons are now canvassing for advertising for a souvenir book purporting to be for a letter-carriers' convention to be held in Peterboro in September, 1920. Contract forms are headed —"To the Federated Association of Letter Carriers," with the words, "Make all cheques payable to the Federated Association, Letter Carriers."

Alex. McMordie, secretary-treasurer of the Federated Association of Letter Carriers, states that neither the letter carriers of Toronto nor the Federated Association of Letter Carriers have authorized any person or persons to solicit advertising or collect monies or donations for the letter carriers, and asks that members of the Association be advised that any moneys or advertising given to these people is not for the benefit of the Toronto letter carriers.

Mr. McMordie adds that these people canvassed Toronto, Montreal, Ottawa and several smaller towns last year without authority of the Federated Association of Letter Carriers. The book they got up was for Hamilton letter carriers. Advertisements totalled $6,817.50. The Hamilton letter carriers received some 250 books and $681.75 cash. Not more than 500 books were printed.

New Chemical Products

Industry at Walkerville to Undertake the Manufacture of Several New Lines

Products derived from toluol will be manufactured in a Walkerville chemical plant during the next few days, none of which have hitherto been produced in quantity in Canada, states the *Toronto Globe*. While this industry was not under way in time to become a factor in the production of explosives, it is the intention to enter on commercial production immediately, and since it is proposed to export approximately three-quarters of the plant output, the industry takes an added importance as one of the most recent additions to the field of chemical industry in the Dominion. One of the most important products which will be made in this plant is benzoate of soda, which is used as a preservative of food, including fruits, jams and canned goods. Being the Canadian end of an American industry, the Walkerville plant was established to take care of the market requirements of the British Empire, and a sale for the products of the Canadian concern will also be sought in China, India and Japan. The parent United States concerns will, besides meeting domestic needs, specialize on the South American and European export trade. Great Britain, Japan, China, India and Australia are looked upon as profitable and extensive markets for the new Canadian industry.

Another product that will be made is benzaldehyde, which is derived from the same process as benzoic acid, and is much used in dye manufacturing. There is no market for this product in Canada, but it is proposed to find a market in Great Britain and Japan. Coumarin, which is something like vanilla, and is made by a synthetic process, is another commodity that will be produced. This is used in making pastry and confectionery.

It is expected that vanilline, a synthetic vanilla flavor, will be produced later on. This product is identical in chemical composition to the flavoring extracted from the vanilla bean. The commercial demand for vanilla has been so much greater than the supply that a method for making a synthetic flavoring has been evolved. This has not been made in Canada, and its accomplishment in the Dominion will mark another step in the march of events in the chemical industries of the Dominion.

Malachite green, a coal tar dye, will be manufactured, which will be sent to Japan for the most part. With the possible exception of sulphur black, this is the only dye being made in Canada.

A Big Car Order

Some Details of Contract Recently Awarded to the Canadian Car and Foundry Co.

In connection with the recent award by the Canadian National Railways to the Canadian Car & Foundry Co., Limited, Montreal, of an order for 1030 cars, Mr. W. W. Butler, the new president of the latter company, supplies the following interesting information:

"The 1030 cars are partly freight cars and partly passenger cars, in the proportion of 900 freight cars, and 130 passenger cars. The 900 freight cars aggregate approximately two and one half million dollars in value and it is our present intention to build 650 of them at our Amherst plant and 250 of them at the Fort William plant. The 650 cars for Amherst will take that plant about two months to complete and the 250 cars for Fort William will probably take about one months' time.

"As regards the passenger cars, it is our present intention to build them at our Montreal plants and we estimate that when we start this order through the shops it will take approximately three months to complete it. The approximate value of the passenger car order is four million dollars, making total for the entire order of 1,030 cars approximately six and a half million dollars.

"As regards the purchase of materials, naturally there is some considerable material which it is impossible for us to procure in Canada, but it is our definite policy to use Canadian materials for every detail possible, with the idea of placing as much of this business with Canadian manufacturers as they can supply.

"While of course this order is very gratifying, at the same time it is not sufficient to keep our plants going to anything like capacity for any length of time, which you can quite appreciate, having in mind that our combined capacity is well over thirty thousand freight cars per annum, and 750 passenger cars per annum."

Take Over Jenckes Co.

Canadian Ingersoll-Rand Co. Now in Possession of Plant of Jenckes Machine Co.

Announcement is made that the business carried on by the Jenckes Machine Co., Limited, for many years as engineers and manufacturers, at their plant in Sherbrooke, P.Q., has been acquired by the Canadian Ingersoll-Rand Co. The latter company have taken over the entire plant and equipment, including all records, drawings, patterns, etc., relating to Jenckes products, and will operate the plant under the name of "Canadian Ingersoll-Rand Co., Limited, Jenckes Plant," the Jenckes Machine Co., Limited, as a separate concern having ceased to exist at the close of 1918.

In connection with the change, the Canadian Ingersoll-Rand Co. say, "Owners of plants wishing to duplicate any equipment they have purchased from the Jenckes Machine Co. in the past or to procure duplicate parts for same, can place such orders with us with full assurance that they will receive prompt and satisfactory service."

Munition Company's Plans

Canadian Cartridge Co. Embarks on an Interesting Programme of New Work

It is the intention of the Canadian Cartridge Company of Hamilton, of which Sir Frank Baillie, of Toronto, is president, to manufacture metal stampings, drop forgings and steel barrels. This company was engaged exclusively in war work, employing between 800 and 900 hands when production was at a maximum. Plans in connection with the new work have already become well advanced, and active steps will be taken immediately to secure production of dies. Steel barrels are already being turned out. In determining upon lines that are considered desirable to enter upon, Sir Frank Baillie has sought to produce commodities that were not made in quantity in Canada before the war and which were formerly imported.

Production of metal stampings is a phase of the steel industry that is considered to have extensive possibilities, especially in connection with the development of a Canadian automobile industry. In the manufacture of agricultural implements and railroad cars as well there is scope for considerable business for the Canadian venture.

The manufacture of steel barrels is the other venture that will be entered upon. This product has been formerly imported almost entirely from the United States. There is a fair demand in this country, and the market is felt to be a growing one. The Canadian Cartridge Company will make it its business to extend the field in Canada. The business in steel barrels developed in the United States, and has found a very large market there.

AMONG THE INDUSTRIES

Under this heading are published items of news of current interest concerning the activities of Canadian manufacturers. Information about changes of interest, enlargement of plants, and plans for future developments are welcome, and are published free of charge, provided they should not be properly classified as advertisements

*** Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin**

ALBERTA

Edmonton.—The increasing of the capacity of the packing plant at Edmonton, Alberta, by one hundred per cent. is one of the signs of the times. When the enlargement is completed in 1919 it will be of much benefit to the livestock industry of the province, especially the central and northerly parts, as it will ensure a greater local market to farmers for all kinds of stock. To the city it means a larger payroll, and all the direct and indirect benefits a community receives from an enlargement of the volume of its business. This in turn also makes for increased prosperity of the farmers by creating a larger demand for their products.

Lethbridge.—It is reported that the Coca-Cola Company has acquired property here with a view to building a branch factory.

Redcliffe.—The Dominion Glass Co. will install new machinery in their local plant.

BRITISH COLUMBIA

Prince Rupert.—Construction of steel ships will be started about February 1st, 1919. Superintendent of drydocks, J. H. Pillsbury.

Vancouver.—A general contract has been let for a $25,000 branch factory for L'Air Liquide Society.

Victoria.—The Victoria Machinery Depot has commenced construction of a two-way steel shipyard near Hospital Point.

MANITOBA

Winnipeg.—Coca Cola Co., Bannatyne & Dagmar Sts., will erect a $12,000 factory at Regina, Moose Jaw, Saskatoon, Lethbridge, and Vancouver. Tenders are being received from February 1st to February 15th.

The Elgin Motor Co. plans to establish a $100,000 auto assembling plant here similar to the Ford factory.

NEW BRUNSWICK

Marysville.—It is the intention of the Nashwaak Pulp and Paper Company to remove its pulp mill from St. John to this point, and representatives of the municipality and the company have arrived at an understanding regarding assessment. Reasons for a removal of the industry to Marysville are found in the fact that the mill would be nearer to its wood supply and its coal areas. The investment will be in the neighborhood of $400,000.

NOVA SCOTIA

Sydney.—The Havelock Bottling Company will remodel and extend their plant and install new machinery.

ONTARIO

Allandale.—Messrs. Gillies and Ireland are contemplating erection of a creamery in Allandale.

Beachville.—A three-storey addition is being made to the creamery of Beachville Creamery Co.

Carleton Place.—Contracts have been let for an extension to the knitting mill of Hawthorne Mills Co., Limited, the same to cost $25,000.

Chatham,—The Hayes Wheel Company of Canada, Limited, have completed contracts with the automobile factories for the manufacture of front axles in the plant formerly occupied by the munition business. They expect to have this plant in operation on automobile work not later than March 1, and will employ two-thirds of the personnel used in the old munition business.

The Denby Motor Truck Co., in spite of the defeat of an assisting by-law, is going ahead with project to locate here. The factory of the Wolverine Brass Co. has been purchased for the purpose and there is sufficient land to admit of expansion when necessary.

Collingwood.—W. J. Holden has purchased site for erection of planing mill and sash and door factory.

Coniston.—Extensions to the plant of the Mond Nickel Company, Limited have been planned.

Fort William.—The Canadian Iron Corporation is preparing plans and specifications for remodelling their pipe foundry, at an estimated cost of $125,000.

Galt.—River Side Silk Mills Co., Water St. N., has purchased site for erection of three storey factory.

Guelph.—The Guelph Worsted & Spinning Co., Limited, intend to put up another storey on the whole of the building now in use, making it a three-storey structure, and in addition to erect a wing, 60 x 80 feet and three storeys high. This will enable the firm to double their output and increase their employees to between 250 and 300.

Hamilton.—The Dominion Foundries & Steel Co. plans in its adjustment to a peace basis of operation the installation of a plate mill, with a capacity of 10,000 to 12,000 tons a month. The size of plate that will be rolled will be 42-inch universal and 84-inch sheared, which will be suitable for shipbuilding, bridges and structural work. Final decision to go ahead with this venture has not been made yet, but it is believed that it will be undertaken in the very near future. The erection of a pattern building, costing $75,000, is being proceeded with and an office building is also being planned for at an equal expenditure.

The International Harvester Company of Canada, Limited, now owns the entire capital stock of the Oliver Plow Works of Canada, Limited, at Hamilton, and has assumed control and operation of that property. Its operation will continue under the new ownership with the present personnel. The manufacture of the types of plows now made at Hamilton will be continued, and the Harvester Company will market them as heretofore through its own organization. The name of the plow works will shortly be changed.

Plans are being prepared for $15,000 addition to plant of Wentworth Mineral Water Co.

Mercury Mills, Limited, propose to make an addition to their factory.

Ingersoll.—From sixty to one hundred workmen have been hard at work for some time past getting the old Noxon implement plant in shape for the new Ingersoll File Co. and the Bissell Manufacturing Co., who are moving here from Fergus.

An industrial centre where manufacturers never have to worry about fuel supply

Coal ***Electricity*** ***Fuel Oil***

VANCOUVER

British Columbia

strategically located for an abundant and never-failing supply of industrial fuel of the highest grade

Bituminous Coal

ONLY 30 miles from Vancouver are the great bituminous coal fields of Vancouver Island — a fuel showing exceptional steam producing results on Admiralty tests.

In direct connection with the coal fields of the Nicola Valley and the Crow's Nest Pass district—both located in British Columbia.

Fuel Oil

LOCATED on the Pacific Coast, the city is in direct touch with the great California oil fields.

This supply is brought to Vancouver by waterborne shipment in large oil tankers—the most economical delivery method.

Fuel oil from the California fields meets the most exacting demands for industrial fuel.

ELECTRIC POWER

The great hydraulic power plants of the Vancouver Power Co. and the Western Power Company of Canada provide an abundant supply of electrical energy for industrial purposes.

Industries which can use mill waste for fuel can obtain ample supplies from the many saw mills located on the city foreshore.

Investigate Vancouver from an Industrial Standpoint

Manufacturers desiring details as to the industrial possibilities in their field can obtain a confidential, unbiassed report by sending enquiry outlining points on which information is desired.

Address enquiries to **J. R. DAVISON,** City Industrial Commissioner,
BOARD OF TRADE BLDG., VANCOUVER, B.C.

Industrial Sites available on Long Leases

Kitchener.—A one-storey brick addition is to be made to the factory of the Pollock Mfg. Co., Limited.

London.—A linen industry, capitalized at $2,000,000, is to be established "somewhere in Western Ontario" to take care of the present flax acreage in this end of the province. London's claim to the industry will be presented through S. F. Glass, M.P., who has had a prominent part in fostering flax-growing in Western Ontario and obtaining Government encouragement. The establishment of such an industry, says Mr. Glass, will be an immediate result of the Government's policy in giving a bounty for the spinning of textiles from flax grown in Canada.

R. C. Baker, of Toronto, has purchased the Peerless Hosiery Co. from Douglas Teasdale for a price, said to have been $100,000.

Matheson.—Two industries are shortly to be established in Matheson. The one is to be known as The Matheson Lumber Company. Its chief promoter is R. S. Potter. This company proposes building a mill with a daily capacity of from 1,500 to 2,500 feet per day. The other will be known as the Matheson Products, Limited. Its promoter is D. L. Stover. This company will operate a flour and feed mill, a grist mill, a bakery and a creamery, and later will utilize the waters of the Black River for the purpose of generating electric light and power.

Oakville.—The Oak Tire & Rubber Co., Limited, will enlarge their factory by the addition of another storey.

Owen Sound.—The Wm. Kennedy & Sons, Ltd., have erected an extension to their already large iron and steel plant. The new building is a substantial one of concrete, stone, brick and steel construction 200 feet by 46 feet, the walls being about 30 feet high. It is to be equipped with two cupolas for melting iron, an elevator for carrying pig and scrap iron and coke to storage bins, situated some 14 feet from the ground, a heavy travelling crane, boring and planing machinery, etc., for large propeller work, ship-deck machinery, turbine water wheels, etc. This company, in conjunction with some others, lately took over the property of the Owen Sound Iron Works and are carrying on there (under the supervision of the Wm. Kennedy and Sons) construction of ship machinery, boiler works, cement and sawmill machinery, etc. They are employing a full staff of mechanics in both plants at present.

Peterboro.—Alexander Stewart is removing his woollen stock mill from Toronto to Peterboro and will install his plant in the Lubricator Building, Hunter Street, East.

The Lavoie Knitting Co., Hunter and Sheridan Streets, have developed their business beyond the accommodation of their present quarters and may move into the old Ashburnham town hall. The company employs an average of fourteen persons.

The Bonner-Worth Co. are considering an extension to their factory buildings.

Port Arthur.—A proposition to erect a large smelter at Port Arthur is under consideration. Estimated cost, $15,000,000.

Port Dover.—Port Dover Canning Co. plans two-storey cement block addition to canning factory costing $25,000.

Preston.—The McKenzie Machinery Co. are now occupying the old Bronze Co. building and are rapidly getting the plant into shape. New machinery is being installed and an addition will be erected.

Sarnia.—E. E. Hale, of Guelph, is considering the establishment of a new paper box factory here.

Smithville.—Smithville Grist Mill Co. plans rebuilding mill and installiing new equipment.

St. Catharines.—Whitman & Barnes are completing plans for the erection of a new and modern plant for the manufacture of implements. During the war the firm made munitions but the work was carried on apart from their staple products, which consist of drills, wrenches, hammers, automobile fixtures and tools and all classes of builders' implements.

Preparations are being made by the McKinnon Industries for the manufacture of new lines, including automobile transmissions, steering gears and differential assemblies and automobile radiators. The plant is also returning to the manufacture of its former products such as saddlery, hardware, malleable iron castings, drop forgings, sheet metal work, iron and steel hames and electric welded products.

Stratford.—The Macdonald Thresher Company have embarked on the manufacture of gas tractors as a new line.

The Stratford Manufacturing Company are branching out into several new lines, notably folding draft screens and children's furniture.

Toronto.—The Canada Wire & Cable Co., Ltd., are installing machinery for manufacturing a full line of steel wire rope in their plant at Leaside. They expect to have this plant in operation by March 15th, 1919, and will then be in a position to supply all sizes and kinds of steel wire rope.

Watford.—Andrews Wire Co. plans erection of extension to factory.

Welland.—Contract has been awarded for the reconstruction of the mill of the Maple Leaf Milling Co.

Woodstock.—The plant and buildings of A. Blair Company's tile plant were destroyed by fire, causing a loss of $30,000.

QUEBEC

Chicoutimi.—A New York architect and engineer has been appointed to draft plans for pulp mills costing $1,000,000 for Price Bros. & Co., Limited.

Montreal.—Canadian Sugar Refining Co., Limited, plan erection of an extension to their plant.

St. Hyacinthe.—Contracts have been let for a $20,000 shoe factory for St. Hyacinthe Soft Sole Shoe Company, Limited.

Shawinigan Falls.—Premises of the Belgo-Canadian Pulp & Paper Co. was damaged by fire on January 3, with a loss of $100,000.

Sherbrooke.—The Canadian Pacific Railway is considering the purchase of the upper town shops of the Canadian Ingersoll Rand Co., Ltd.

Tenders are being called for an addition to the factory of the Canadian Connecticut Cotton Mills, Limited.

Three Rivers.—It is stated that the directors of the Wabasso Cotton Co. have under consideration further extension to their mills at Three Rivers, at a cost of $300,000.

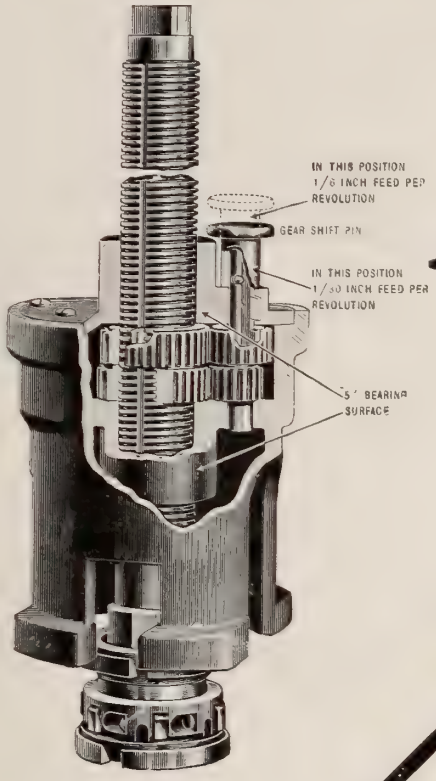
It is reported that the St. Maurice River Lumber Co., a subsidiary of the International Paper Co., incorporated in 1916, will locate a sulphite mill, costing $500,000, and possibly a paper mill, at the outlet of the St. Maurice River. The company has been working upon the plan since 1913. The scheme involves the development of Les Forges Rapids on the St. Maurice River, nine miles north of Three Rivers. A monolithic concrete dam, 30 feet high and 1,900 feet long will be built. The foundations will be carried 60 feet below low-water level. The power station will be equipped with seven water turbines, each 9,500 horse power. It is stated that the power development portion of the scheme will cost about $7,000,000. It is expected that work will be started on the dam by next spring.

Windsor Mills.—The Kilgour Co., of Toronto, are starting a paper box factory here.

SASKATCHEWAN

Yorkton.—Saskatchewan Co-operative Creameries, Ltd., 502 Northern Crown Bldg., Regina, plans erection of $40,000 cold storage plant and abattoir.

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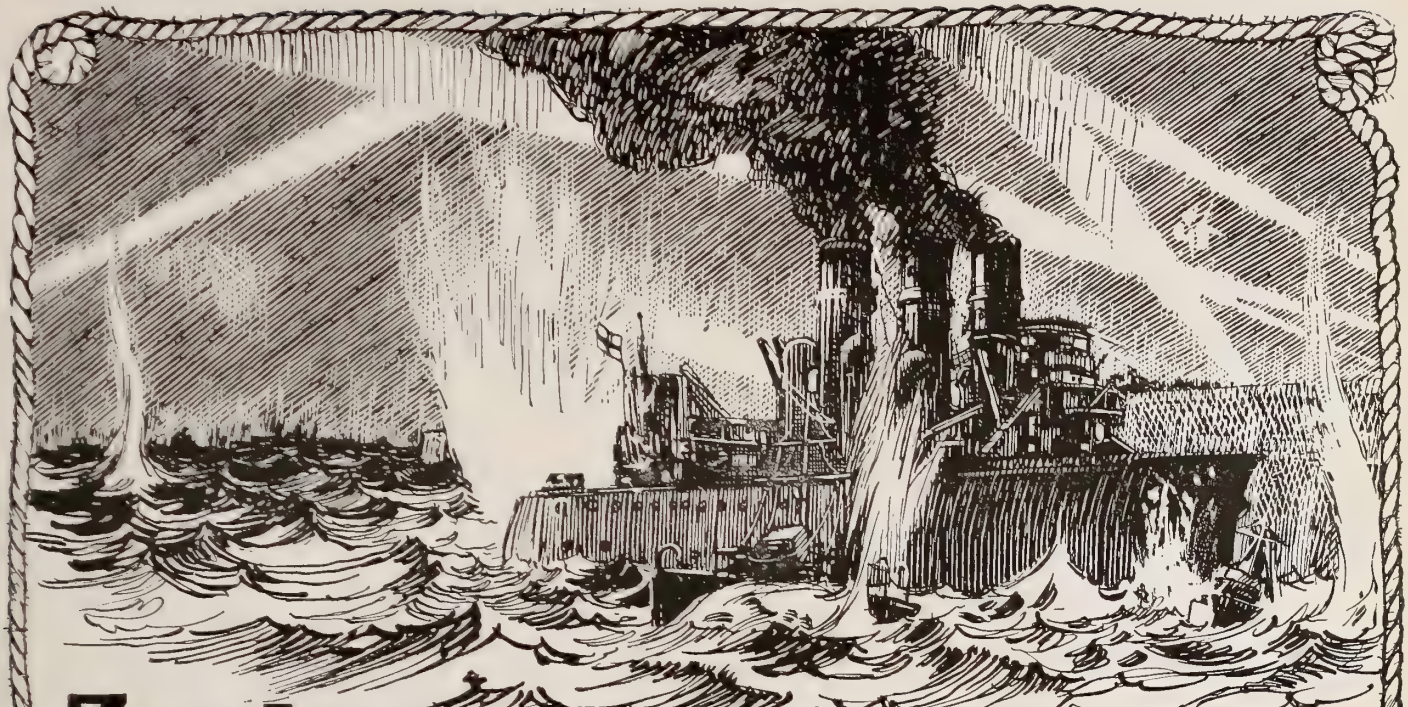
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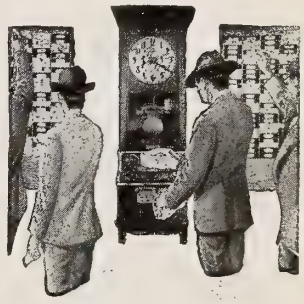
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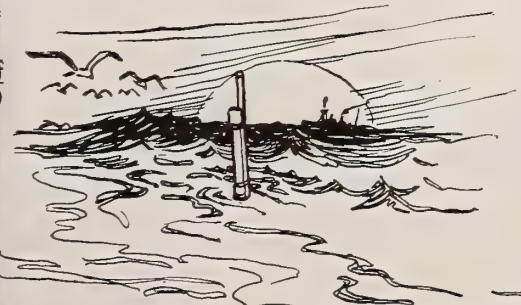
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Handling Coal and Ashes

The Link-Belt Company have issued another of their fine, descriptive and educational booklets, this time one by Henry J. Edsall, M.E., which discusses the economical handling of coal and ashes and reserve coal storage. The material, coming from such a source, is naturally authoritative, and the reading matter gains from the setting in which it has been placed by the publicity department of the Link-Belt Company. The illustrations are exceedingly good.

Atkins Saws and Metal Cutters

From E. C. Atkins & Co., Inc., Indianapolis, Ind., and Hamilton, Ont., came a couple of small booklets, one describing Atkins' circular metal cutting saws and the other Atkins' Kwik-Kut metal cutting machines. Both are exceedingly well illustrated with the finest of half-tones and the letterpress tells clearly about the nature and merits of the various lines. All users of saws should have these booklets on or near their desks for ready reference.

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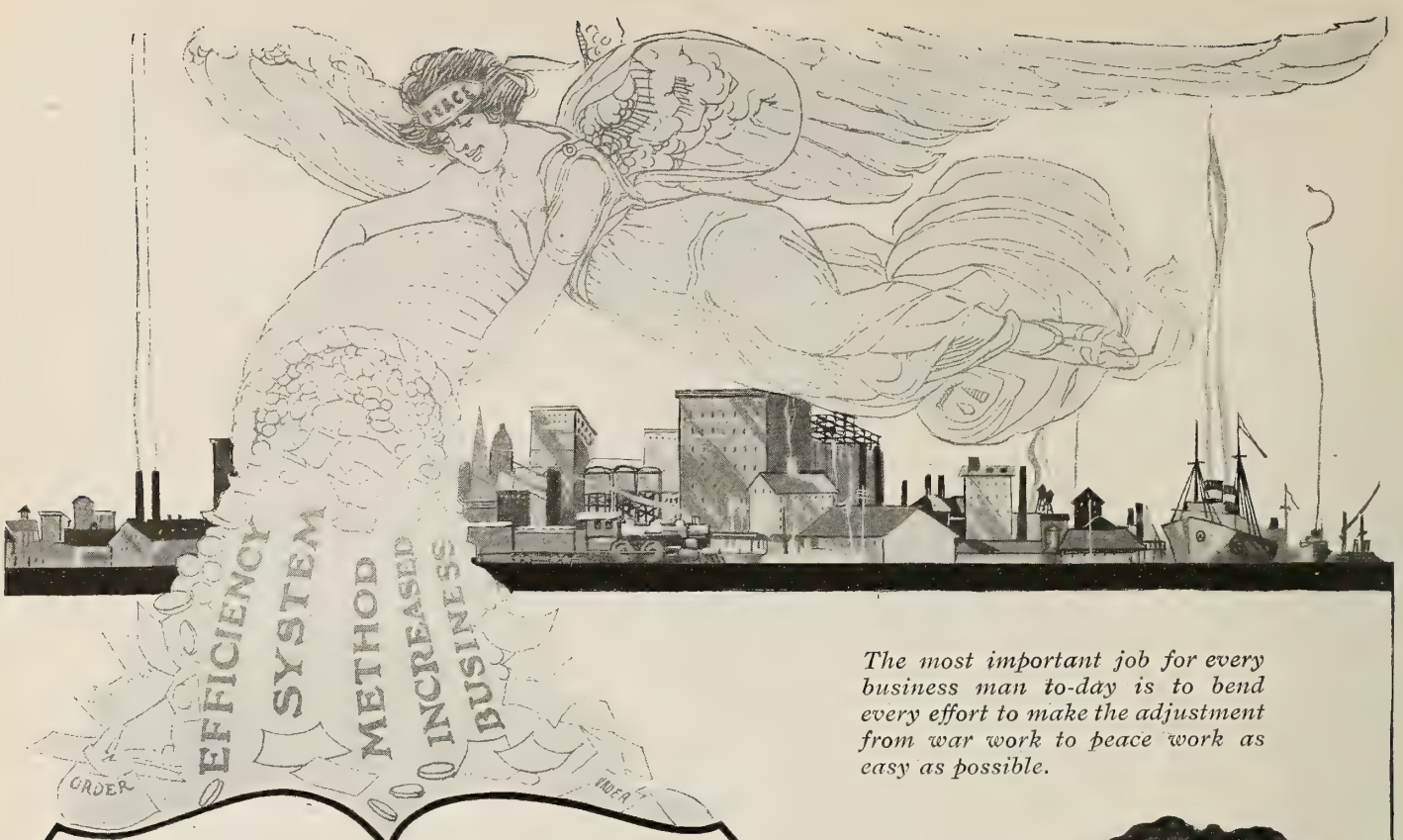
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OFFICE AND FINANCE

Indebtedness of Nations at War's Close

It is Estimated by a United States Banking Authority that at January 1, 1919, the Total Indebtedness of the Warring Nations Had Reached the Stupendous Total of 194 Billions—Of this Huge Amount the Entente Nations Owe 130 Billions, while the Teutonic Nations Owe 64 Billions—Debt of Great Britain Amounts to 40 Billions of Dollars

From "The Manufacturers' News"

THE gross indebtedness of the nations of the world has risen in four years from 27 to more than 200 billion dollars, according to a statement issued recently by the Mechanics and Metals National Bank of New York. According to this statement, the indebtedness of the seven nations which were chiefly engaged in carrying forward the great war amounted to 194 billion dollars on January 1, 1919—Great Britain and Germany having the largest debts of any of the belligerents; France being third after these countries; while next in turn were Austria-Hungary, Russia, the United States and Italy. The United States came into the war after the other nations, and that fact sets it somewhat apart from the general experience of the belligerent nations, notwithstanding that war expenditures here from 1917 forward were more than those of any other single belligerent.

The Mechanics and Metals National Bank has made an exhaustive study of the war obligations of Europe and the United States, and will shortly publish its results in a book entitled "The World's War Debt." According to the bank's figures, securities now outstanding against the seven nations which chiefly financed the war represent a sum greater than the developed wealth of any single nation of the world, other than the United States. They represent a sum six times as large as the deposits of all the banks of the United States, twelve times as large as all the gold and silver mined since the beginning of the world and twenty times as large as the value of our annual foreign trade.

How Debts Grew

The indebtedness of Great Britain, which in the middle of 1914 represented a mortgage equal to 4 per cent. of the nation's wealth, now represents a mortgage equal to more than 44 per cent of that wealth. The indebtedness of Germany, which in 1914 represented a mortgage of 6 per cent. of Germany's national wealth, now represents a mortgage of nearly 50 per cent. of that wealth. For Austria-Hungary the increase has been to 60 per cent. of the nation's wealth, for France and Russia to 45 per cent., and for the United States to 8 per cent.

Estimating the indebtedness of the nations on January 1. 1919, the figures of the Mechanics and Metals National Bank are as follows, in comparison with the national debt figures as they stood at the outbreak of the war—i. e., on August 1, 1914:

	Aug. 1, 1914.	Jan.. 1, 1919.
United States	$1,000,000,000	$21,000,000,000
Great Britain	3,500,000,000	40,000,000,000
France	6,500,000,000	30,000,000,000
Russia	4,600,000,000	27,000,000,000
Italy	2,800,000,000	12,000,000,000
Entente nations	$18,400,000,000	$130,000,000,000
German Empire and States	5,200,000,000	40,000,000,000
Austria-Hungary	3,700,000,000	24,000,000,000
Teutonic nations	$8,900,000,000	$64,000,000,000
Gross debt, all belligerents.	$27,300,000,000	$194,000,000,000

Vast as the above figures are, the debt obligations of the nations will not even end here. A gross total of 194 billion dollars for the countries given represent only the war indebtedness, as added to the indebtedness in 1914. It makes no allowance for obligations to be incurred for further military purposes, for the demobilizing of armies, and for pensioning them. Nor does it allow for the restoration and replishment expenditures that will impose upon the nations the duty to incur further loans. There will be, beside the expense of demobilizing the armies, the work of rebuilding and restoring, of housing on an unparalleled scale and of roadmaking. There will be the imperative need of agricultural development, shipbuilding and improvement of transportation—to say nothing of schemes of economic and social reform that are regarded as absolutely essential to future national efficiency.

No Danger of Repudiation

The Mechanics and Metals National Bank maintains, in drawing conclusions from the figures for the war debts, that none of the large nations will default their war bonds, nor seek to cancel them by any outright confiscation of wealth. "The moral obloquy and financial chaos attending deliberate repudiation of war debts" the bank says, "would be greater than any of the nations could bear." During the reconstruction period the nations will be zealous to restore their prestige and return to normal business pursuits with their reputation and financial standing firmly established among the people of the world. To insure this, first and foremost will be the need that their credit shall remain unquestioned. Russia offers a present-day example of a nation that has lost position and confidence through the endeavor of a *de facto* government to avoid meeting its just obligations. Governments in the past have gone out of existence, yet history shows how often the people of the nations concerned nevertheless acknowledged and met the debts contracted in their names, rather than have the sacredness of their word dishonored and their credit destroyed.

Taxes Will Wipe Slate

It is maintained by the bank that, if the war debts are not to be repudiated or scaled down, it will ultimately have to be out of the people's income and savings that the necessary funds to pay the principal and interest of them are provided. "Taxes will have to wipe the slate clean," says the bank; "for while public securities are a mortgage on the wealth of a nation, their security is really the right to share in the earning power of that nation, and to be redeemed out of that earning power. The difficulty will be very great of adjusting the tax levies properly, for it is plain that there is a maximum of taxation beyond which any nation will not find it safe to go. To make a tax too extreme would be to kill initiative and incentive, and thus diminish industrial and

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commercial prosperity. If tax bills in any country were hereafter to exceed the annual excess of the people's production over consumption, the progress of that nation would stop."

How Debts Will Be Liquidated

The bank maintains that the increasing wealth of the nations, combined with carefully drawn tax plans, will eventually bring about the wiping out of the war debts. It shows that in the century following the battle of Waterloo, the British nation gained vastly in prosperity, although its debt was larger than ever before. In similar fashion, it is shown how the wealth of France increased in the face of wars. Notwithstanding the blows to her prosperity dealt by the revolution of 1789, the Napoleonic period, the revolution of 1848, and the Prussian war of 1870, industry and accumulation went on in France—so much so that, compared with 1789, the wealth of France up to the opening of the great war had increased more than eightfold.

"The determining factor of the whole matter in the future," the bank concludes, "will, after all, lie not so much in the bulk of indebtedness as in the productive power of the people who support that indebtedness. Depending upon the wealth production of the people, the support of war debts will be governed accordingly, and debts will be wiped out, not by any repudiation or any conscription of wealth, but by encouraging industry, trade, commerce and economic activity of every kind."

Brompton Pulp and Paper

Earnings for 1918 Reported as Slightly Less than for Previous Year

Earnings of the Brompton Pulp & Paper Co., for the year ended October 31, 1918, amounted to $1,051,274, as compared with $1,073,562 in 1917, a decrease of $22,288. After deducting depreciation, bond interest and preferred dividend payments, there remained available for common dividends the sum of $637,274 which compares with $669,825 one year ago. This works out at 9.1% on the common stock of $7,000,000, as against 9.6% in 1917. The difference in the two years was more than covered by the decrease during the first six months of the last fiscal year, owing to the poor transportation conditions that ruled during the whole of last winter. The latter half of the year ran ahead, and the management look forward to a much better year in 1919.

The profit and loss account shows a slightly larger amount allowed for depreciation. The balance for the year is $287,274 as compared with $319,826 one year ago. The surplus on hand at the end of the year amounted to $607,100 compared with the amount mentioned above as the balance for last year, as this year completes the second full year of the present organization.

With the company engaged in acquiring new properties it is not surprising that the working capital element falls behind that of one year ago. The liquid assets are much higher, $3,093,466 compared with $2,208,933, inventories increasing $900,000, but there has been an even greater increase in the current liabilities, and an item of bank indebtedness of $500,000 has no parallel in the statement for 1917. In addition accounts payable are up nearly $200,000, and pay roll, etc., about $90,000, the totals comparing as $1,279,673 to $2,208,933. This leaves a net balance of working capital of $1,313,793 against $1,719,755 one year ago, a decrease of over $400,000.

Coming to the balance sheet the plant is taken in at $8,662,097 as against $8,896,544 the year before; investments have grown from $149,277 to $479,925, part of which represents the interest in the new properties, and as such are not included in the list of current assets as would be the

case if they stood only for investments in the form of immediately available securities by an even $90,000, and stands at $1,452,000, which, however, will be raised to one million dollars more by the new issue. Altogether the combined assets amount to $12,338,773 compared with $11,333,004 one year before.

In view of the statement the president, F. N. McCrea, M.P., says, that the company in common with others "has been confronted with serious manufacturing difficulties and under these conditions the above statement may be considered quite satisfactory. The return to more settled conditions," he adds, "should reflect itself on the future earnings."

Pulp and Paper Exports

A Heavy Increase Report for the Month of November Over November of 1917

Trade returns for November—the first to be affected by the cessation of war—show a jump of $1,958,845 in the value of Canadian pulp and paper exports as compared with November, 1917. Of this amount $1,325,999 is accounted for by increased export of chemically-prepared pulp. Trans-Pacific trade shows a considerable increase, Australia and New Zealand together taking 65,677 tons of printing paper, valued at $236,131, and Japan taking 64,594 tons of chemical pulp valued at $275,050. As cargo space becomes more available exports to these countries should show a considerable increase. The total value of the month's exports was $8,166,466, made up as follows: Paper and manufactures thereof, $3,956,992; chemical pulp, $2,943,294; mechanical pulp, $399,851; pulpwood, $866,329.

The Dominion Bank's Excellent Year

Quick Assets Stand at Fifty-three Per Cent. of Liabilities to the Public and Amount to $63,500,000

The supreme test of a bank's strength is its position in respect to assets, for herein lies the measure of its ability to meet adverse conditions, should they arise. Measured by this test The Dominion Bank, according to figures revealed by the annual statement submitted to the shareholders at the meeting on Wednesday, 29th January, undoubtedly occupies a decidedly strong financial position.

One particular item which indicates this is the immediately available assets, meaning of course those which could be forthwith turned into legal currency if circumstances demanded it. This group of assets increased during the year by the substantial sum of $5,800,000, the total now being $63,500,000.

But the real significance of those figures is neither the extent to which they have been augmented nor the amount at which they stand. Their principal import is in the fact that they are in themselves sufficient to liquidate no less than 53 per cent. of the bank's liabilities to the public, certainly an enviable position. Then there are the purely cash assets. These, through an increase of $1,160,000 during the year, now stand at $28,498,000, or equal to 23.80 per cent. of the bank's liabilities to the public. Naturally, in view of the substantial appreciation under these two classifications, a marked gain was to be expected in the bank's total assets. The annual statement shows that there is no room for disappointment in this respect, for they reveal a gain to the extent of $24,000,000, and now aggregate $133,500,000.

A further and gratifying indication of the bank's prosperity is the net earnings, amounting to $1,086,498, an in-

THE ROYAL BANK OF CANADA

Capital Paid Up..... $14,000,000
Reserve and Undivided Profits..... 15,500,000
Total Assets..... 427,000,000

HEAD OFFICE - MONTREAL

BOARD OF DIRECTORS:

Sir Herbert S. HOLT, Pres. E. L. PEASE, Vice-Pres.
E. F. B. JOHNSTON, K.C., 2nd Vice-Pres.

Jas. Redmond	C. S. Wilcox
G. R. Crowe	A. E. Dyment
D. K. Elliott	C. E. Neill
Hon. W. H. Thorne	Sir Mortimer B. Davis
Hugh Paton	G. H. Duggan
Wm. Robertson	John T. Ross
A. J. Brown, K.C.	R. MacD. Paterson
W. J. Sheppard	W. H. McWilliams

OFFICERS

E. L. Pease, Man. Director, C. E. Neill, Gen. Manager. F. J. Sherman, Asst. Gen.-Manager; M. W. Wilson, Supt. of Branches.

Branches in every Province of the Dominion of Canada and in **Newfoundland**; in **Havana** and throughout **Cuba**, Porto Rico, Dominican Republic, Costa Rica, and Venezuela; **Antigua**, St. John's; **Bahamas**, Nassau; **Barbados**, Bridgetown, **Dominica**, Roseau; **Grenada**, St. George's; **Jamaica**, Kingston; **Montserrat**, Plymouth; **Nevis**, Charlestown; **St. Kitt's**, Basseterre; **Trinidad**, Port of Spain and San Fernando; **British Guiana**, Georgetown, New Amsterdam and Rose Hall (Corentyne); **British Honduras**, Belize.

SPAIN, Barcelona—Plaza de Cataluna 6.
LONDON, England, OFFICE—Princes St., E.C.
NEW YORK AGENCY—Cor. William and Cedar Sts.
(Savings Department at all Branches.)

UNION BANK OF CANADA

Established 1865 **Head Office, WINNIPEG**

Paid-up Capital - - -	$5,000,000
Reserve Fund - - -	$3,600,000
Total Assets over - - -	$153,000,000

TO MANUFACTURERS AND EXPORTERS

who are reaching out for greater trade, over broader territory, the Union Bank of Canada offers a comprehensive banking service, complete and efficient. This service not only covers Canada, where we have 299 Branches, but through the Foreign Exchange Department of our London (England), New York and Montreal Offices, and the Commercial Information Bureaus established at these Branches, it offers valuable assistance to Canadian Manufacturers who are selling Overseas.

LONDON (ENGLAND) BRANCHES
6 Princes St., E.C. Haymarket, S.W.
New York Agency
49 Wall St., New York City—Geo. Wilson, Agent

UNION BANK OF CANADA

54th Annual Statement—30th November, 1918

General Statement of Liabilities and Assets as on 30th November, 1918

LIABILITIES

Capital Stock		$5,000,000 00
Rest Account	$3,600,000 00	
Balance of Profit and Loss Account carried forward	126,298 90	
	$3,726,298 90	
Unclaimed Dividends	10,261 43	
Dividend No. 127, payable 2nd December, 1918	112,500 00	
		3,849,060 33
		8,849,060 33
Notes of the Bank in circulation	$12,134,649 00	
Deposits not bearing interest	58,805,207 86	
Deposits bearing interest	68,437,490 47	
Balances due to other Banks in Canada	424,601 94	
Balances due to Banks and Banking Correspondents elsewhere than in Canada	1,751,177 75	
		141,553,127 02
Acceptances under Letters of Credit		2,706,467 06
Liabilities not included in the foregoing		72,797 11
		$153,181,451 52

ASSETS

Gold and Silver Coin	$940,446 58	
Dominion Government Notes	15,113,307 00	
		$16,053,753 58
Deposit with the Minister of Finance for the purposes of the Circulation Fund		260,000 00
Deposit in the Central Gold Reserves		7,800,000 00
Notes of other Banks		763,793 00
Cheques on other Banks		3,817,392 16
Balances due by other Banks in Canada		92,051 67
Balances due by Banks and Banking Correspondents elsewhere than in Canada		2,933,356 72
Dominion and Provincial Government Securities not exceeding market value		12,527,937 82
Canadian Municipal Securities, and British, Foreign and Colonial Public Securities other than Canadian		15,720,338 76
Railway and other Bonds, Debentures and Stocks not exceeding market value		2,501,824 71
Call and Short (not exceeding 30 days) Loans in Canada, on Bonds, Debentures and Stocks		6,508,728 64
Call and Short (not exceeding 30 days) Loans elsewhere than in Canada		3,389,150 00
		$72,368,327 06
Other Current Loans and Discounts in Canada (less rebate of interest)		74,021,028 40
Other Current Loans and Discounts elsewhere than in Canada (less rebate of interest)		1,944,112 28
Real Estate other than Bank Premises		268,152 80
Mortgages on Real Estate sold by the Bank		141,656 39
Overdue Debts, estimated loss provided for		327,941 58
Bank Premises, at not more than cost, less amounts written off		1,237,606 70
Liabilities of customers under Letters of Credit, as per contra		2,706,467 06
Other Assets not included in the foregoing		166,159 25
		$153,181,451 52

JOHN GALT, President. **H. B. SHAW, General Manager.**

Report of the Auditors to the Shareholders of the Union Bank of Canada.

In accordance with the provisions of subsections 19 and 20 of Section 56 of the Bank Act, we report to the Shareholders as follows:

We have audited the above Balance Sheet with the books and vouchers at Head Office and with the certified returns from the branches.

We have obtained all the information and explanations that we have required, and are of the opinion that the transactions of the Bank which have come under our notice have been within the powers of the Bank.

In addition to our verification at the 30th November, we have, during the year, checked the cash and verified the securities representing the investments of the Bank at its chief office and principal branches and found them to be in agreement with the entries in the books of the Bank relating thereto.

In our opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Bank, according to the best of our information, and the explanations given to us, and as shown by the books of the Bank.

T. HARRY WEBB, E. S. READ, C. R. HEGAN,
Auditors, of the firm of
WEBB, READ, HEGAN & CO.,
Chartered Accountants.

Winnipeg, 20th December, 1918.

crease of $81,435 over 1917. By way of still further comparison it may be pointed out that these net profits were 8.35 per cent. of the bank's capital and reserve as against 7.73 per cent. a year ago. After deducting $720,000 for dividends; $38,000 for patriotic and charitable objects; $25,000 for officers' pension fund; and $250,000 written off bank premises, the substantial sum of $446,503 was carried forward in profit and loss account. The last-named amount exceeded that of the previous year by $53,000.

From a further perusal of the annual statement it is evident that The Dominion Bank has been able to extend its business as well as strengthen its assets and increase its net profits. Total deposits, for example, through a gain of $14,100,000, amounted to no less than $96,107,000 at the end of December last. That its relationship with the industrial life of the country made further improvement is evident from the fact that the bank's commercial loans at the close of 1918 were larger by $18,500,000 than they were at the corresponding period a year ago, their total amounting to $64,100,000.

Union Bank's Prosperous Year

Profits Earned Were Largest in Bank's History and Great Expansion of Business Is Indicated

With profits of $824,174, the Union Bank of Canada closed the most prosperous year in its history on November 30th, 1918. Profits for 1916 were $651,183, and for 1917, $763,464, so that the 1918 showing continued the steady forward progress that has characterized the bank's business of recent years. With a balance brought forward of $106,624, there was a total available for distribution of $930,798. From this sum $450,000, or slightly less than half, was disbursed in dividends; $200,000 was placed to the credit of the reserve, bringing that item up to $3,600,000, and other payments were made sufficient to leave a balance of $126,298,

The part played by the Union Bank in the business life of the Dominion is disclosed alike by its deposits and its loans. Deposits expanded during the year from $117,876,962 to $127,242,698, or by nearly ten millions. Current loans in Canada grew from $58,791,493 to $74,021,028, or by more than fifteen millions.

Apart from the expansion of current loans important changes in the balance sheet showed: an increase in $3,100,000 of Government securities held, a reflection of Government financing; a decline of $2,200,000 in bank balances abroad and of $1,200,000 in current loans abroad, indicating the recall of foreign funds for domestic purposes; declines in public securities of $520,000, other securities of $430,000, Dominion notes of $4,400,000 and gold reserve of $400,000 and an increase of $450,000 in call loans abroad.

Important developments were announced and made effective at the recent annual meeting of shareholders. Thus, the dividend rate is to be raised to 10 per cent. per annum. Offices are to be opened at San Francisco, Seattle and Yokohama. The capital stock is to be increased from $5,000,000 to $8,000,000, while authority was given to raise the total capital to $15,000,000.

In December, 1918, the disbursements of one of the packing plants at Edmonton, Alberta, for cattle, hogs, sheep, calves, turkeys, chickens, geese, ducks, cream, and for freight and labor connected therewith, amounted to $1,234,000. These figures convey some idea of the great and growing importance of this industry to the city and surrounding territory. This territory is capable of considerably greater production and with the convenient markets, great development is being looked foward to during the next few years. The packing companies are preparing for this development by increasing the size of their plants.

Banking Service

The attention of manufacturers is drawn to the excellent facilities this Bank offers in all branches of a complete banking service.

A good banking connection is an essential to the success of the manufacturer or merchant.

THE CANADIAN BANK OF COMMERCE

HEAD OFFICE - TORONTO

Capital, $15,000,000. Reserve Fund, $15,000,000
Total Assets over $440,000,000

The Merchants Bank of Canada

Head Office, MONTREAL **Established 1864**

Paid-up Capital	$ 7,000,000
Reserve Funds	7,421,292
Total Deposits (October, 1918)	132,000,000
Total Assets (October, 1918)	165,000,000

President: Sir H. Montagu Allan, C.V.O.
Vice-President: K. W. Blackwell
Managing-Director: E. F. Hebden
General Manager: D. C. Macarow
Supt. of Branches and Chief Inspector: T. E. Merrett

THE WORLD OF FINANCE

offers no more thorough and up-to-date system than that which regulates the workings of The Merchants Bank.

It is this careful training and efficient management which enables this Bank to give to its customers a most modern and satisfactory banking service.

289 Branches in Canada Extending from the Atlantic to the Pacific.

NEW YORK AGENCY, 63-65 WALL ST.

THE DOMINION BANK

At the Forty-Eighth Annual General Meeting of the Shareholders of The Dominion Bank, held at the Head Office in Toronto, on 29th January, 1919, the following Statement of the affairs of the Bank as on the 31st December, 1918, was submitted:

PROFIT AND LOSS ACCOUNT

Balance of Profit and Loss Account, 31st December, 1917		$393,004 84
Profits for the year, after deducting charges of management and making full provision for bad and doubtful debts	$1,169,798 38	
Less		
Dominion Government War Tax (on circulation) $60,000 00		
Taxes paid to Provincial Governments 23,300 00		
	83,300 00	
Making net profits of		1,086,498 38
		$1,479,503 22
Which amount has been disposed of as follows:		
Dividends (quarterly) at 12 per cent. per annum	$720,000 00	
Contribution to Toronto and York Co. Patriotic Association and Canadian Red Cross Society $25,000 00		
Contribution to Navy League of Canada 10,000 00		
Contribution to Catholic Army Huts Campaign 1,000 00		
Contribution to Y.M.C.A. Red Triangle Fund. 2,000 00		
	38,000 00	
Contribution to Officers' Pension Fund	25,000 00	
	783,000 00	
Written off Bank Premises	250,000 00	
	1,033,000 00	
Balance of Profit and Loss Account carried forward	446,503 22	
		$1,479,503 22

GENERAL STATEMENT

LIABILITIES

Capital Stock paid in		$6,000,000 00
Reserve Fund	$7,000,000 00	
Balance of Profit and Loss Account carried forward	446,503 22	
Dividend No. 145, payable 2nd January, 1919	180,000 00	
Former Dividends unclaimed	3,690 00	
		7,630,193 22
Total Liabilities to Shareholders		$13,630,193 22
Notes in Circulation	$9,858,533 00	
Due to Dominion Government	11,000,000 00	
Deposits not bearing interest $33,843,584 77		
Deposits bearing interest, including interest accrued to date 62,264,126 61		
	96,107,711 38	
Balances due to other Banks in Canada	1,131,994 04	
Balances due to Banks and Banking Correspondents elsewhere than in Canada	1,002,534 64	
Bills Payable	86,520 00	
Acceptances under Letters of Credit	305,616 76	
Liabilities not included in the foregoing	383,171 94	
Total Public Liabilities		119,876,081 76
		$133,506,274 98

ASSETS

Gold and Silver Coin	$1,940,780 53	
Dominion Government Notes	13,473,468 00	
Deposit with Central Gold Reserves	4,600,000 00	
Notes of other Banks	1,037,315 49	
Cheques on other Banks	4,995,232 10	
Balances due by other Banks in Canada	7,779 15	
Balances due by Banks and Banking Correspondents elsewhere than in Canada	2,443,405 46	
	$28,497,980 73	
Dominion and Provincial Government Securities, not exceeding market value	9,966,508 15	
Canadian Municipal Securities, and British, Foreign and Colonial Public Securities other than Canadian, not exceeding market value	13,009,830 54	
Railway and other Bonds, Debentures and Stocks, not exceeding market value	2,376,325 95	
Call and Short (not exceeding 30 days) Loans in Canada on Bonds, Debentures and Stocks.	8,408,800 29	
Call and Short (not exceeding 30 days) Loans elsewhere than in Canada	1,269,403 93	
		$63,528,849 59

THE DOMINION BANK—*Continued*

Other Current Loans and Discounts in Canada (less rebate of interest)	$64,092,006 46	
Other Current Loans and Discounts elsewhere than in Canada (less rebate of interest)	26,782 18	
Liabilities of Customers under Letters of Credit, as per contra	305,616 76	
Real Estate other than Bank Premises	11,470 43	
Overdue Debts (estimated loss provided for)	85,605 91	
Bank Premises, at not more than cost, less amounts written off.	5,128,854 04	
Deposit with the Minister of Finance for the purposes of the Circulation Fund	304,500 00	
Mortgages on Real Estate sold	22,589 61	
		69,977,425 39
		$133,506,274 98

E. B. OSLER, *President.* C. A. BOGERT, *General Manager.*

AUDITORS' REPORT TO SHAREHOLDERS

We have compared the above Balance Sheet with the books and accounts at the Chief Office of The Dominion Bank, and the certified returns received from its Branches, and, after checking the cash and verifying the securities at the Chief Office and certain of the principal Branches on December 31st, 1918, we certify that, in our opinion, such Balance Sheet exhibits a true and correct view of the state of the Bank's affairs, according to the best of our information, the explanations given to us and as shown by the books of the Bank.

In addition to the examination mentioned, the cash and securities at the Chief Office and certain of the principal Branches were checked and verified by us at another time during the year and found to be in accord with the books of the Bank.

All information and explanations required have been given to us and all transactions of the Bank which have come under our notice have, in our opinion, been within the powers of the Bank.

G. T. CLARKSON
R. J. DILWORTH } of Clarkson, Gordon & Dilworth, C.A.

Toronto, January 21st, 1919.

Belding Paul Corticelli

During 1918 Company Made the Best Showing in History of the Organization

The gross profits of Belding Paul Corticelli, Limited, for the year ended Nov. 30, 1918, were $278,731, and net profits, $189,478. This represents the best showing in the history of the amalgamated company. The net of $189,478 represents earnings at the rate of 21.9 per cent. on the preferred stock. After allowing a year's dividend on the preferred the balance would have equalled 17.2 per cent. on the common.

A. O. Dawson, president of the company, notes in his annual report that in continuing the policy outlined by the directors three years ago, the property has been further improved in the year. He adds:

"Considerable difficulty was experienced during the year in securing raw materials necessary to the business, notably tin crystals used largely in the ribbon department. Happily with the ending of the war these problems will no longer menace the business."

Creameries Busy

Dairies in Western Canada Break All Records During Past Year

The advance of the dairy industry in Western Canada is shown in the increased production of many dairies during the season of 1918. The co-operative dairy at Regina, Saskatchewan, manufactured three-quarters of a million pounds of butter last year as compared with 442,000 pounds the previous year. An increase of nearly one hundred per cent. over the previous year's production is the result of last year's working at Melville, Saskatchewan, the output of butter jumping from 167,000 to 306,000 pounds. Many other creameries show equally satisfactory progress. The Saskatchewan Co-operative Creameries, Limited, which operates twenty creameries in the province, manufactured more than a million pounds of butter during the year ending November 1, or five hundred thousand pounds more than the previous year.

Gillette Safety Razor

Canadian Subsidiary Proposes to Embark on Large Export Trade

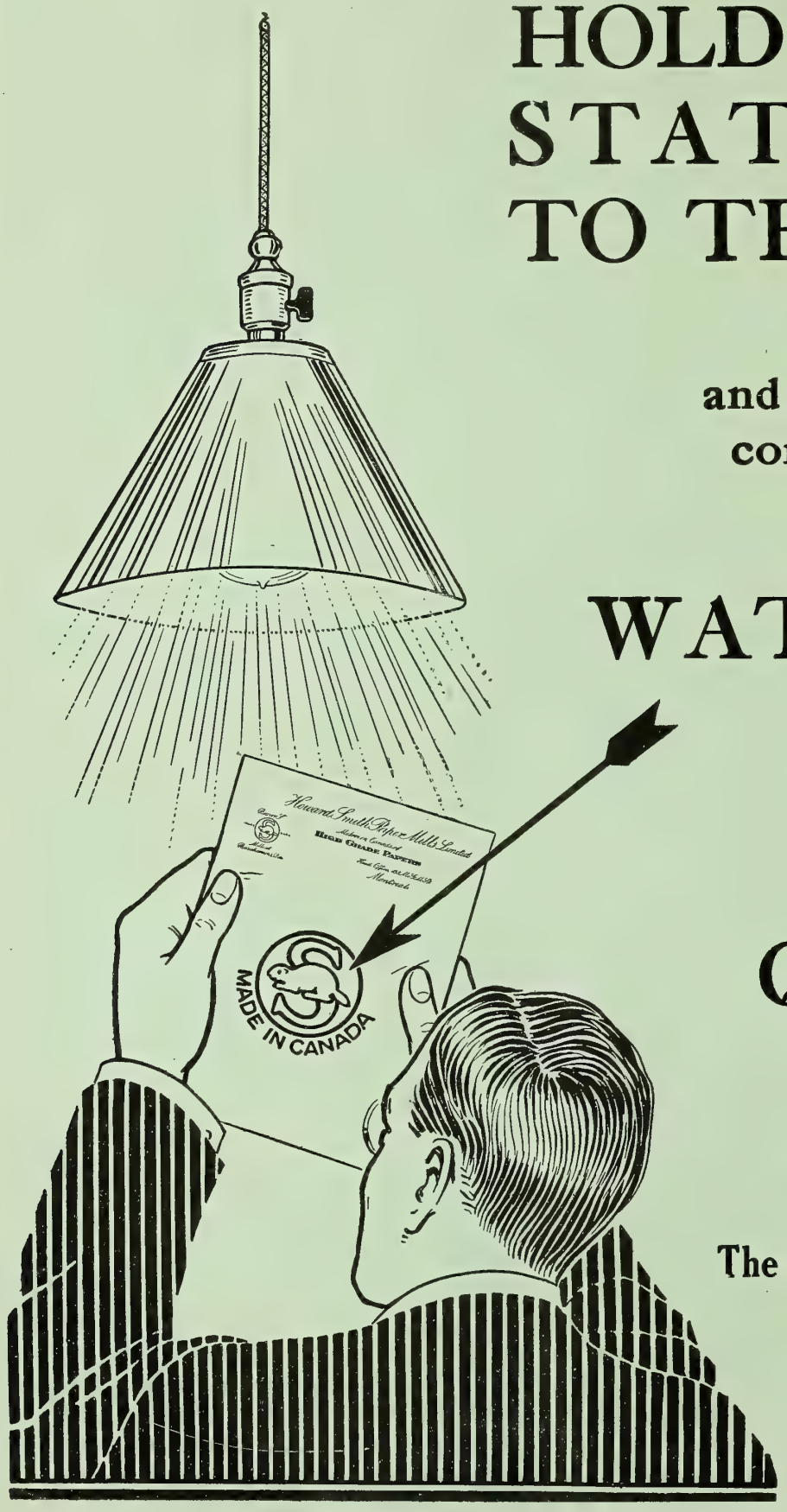
At the annual meeting of the shareholders of the Gillette Safety Razor Company of Canada, held in Montreal, announcement was made that the company proposed invading such countries as Mexico, British East Indies, Cuba and the various South American countries, as well as Central America, while salesmen had already started for England, France, Italy, Russia, Australia, New Zealand, South Africa, China and Japan, where they will establish sales organizations and distributing stations.

According to a report made at the annual meeting by Managing Director A. A. Bittues, the year 1918 was the best in the company's history, sales increasing 20 p.c. over the figures for the pervious year, while the blade production in Canada gained 160 p.c., and razor production 301 p.c. in the same period. It was also announced that the company's steel plant in Sweden was now able to supply steel in unusual quantities, while shipping facilities, which were approaching normal, permitted them to ship to foreign countries and to go after business in a more energetic manner than had been possible during the four years of war.

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and see that it contains this

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It is your guarantee for

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RIORDON SALES COMPANY, LIMITED

MONTREAL

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Sulphite Fibre Wood Pulp

BLEACHED AND UNBLEACHED

FOR PAPER MILLS

IMPERVIOUS SPRUCE SHEATHING

Lumber

SPRUCE, HEMLOCK AND PINE, CEDAR RAILWAY TIES AND SHINGLES, SPRUCE CLAPBOARDS.

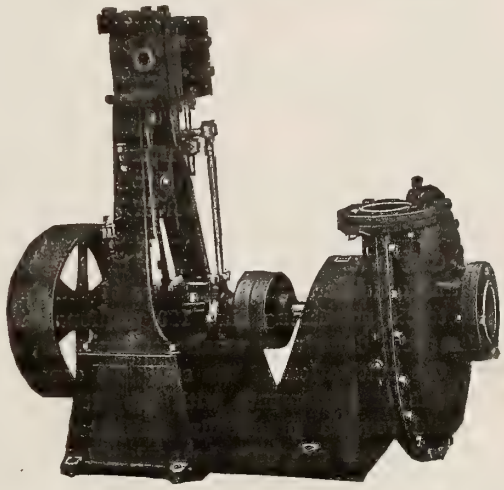
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T. J. STEVENSON GEO. E. CHALLES

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PUMPS

but misrepresent them



Give us an opportunity to show you how well we can fit your needs.

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FACTORIES FOR SALE

Two desirable plants, one at Mount Forest, constructed of brick, floorage over 40,000 square feet, formerly operated by Weir Wardrobe Co.; and the other at Guelph, stone, floorage over 50,000 square feet, formerly operated by Dominion Casket Co. Apply to:

Canada Furniture Manufacturers, Limited
WOODSTOCK, ONT.

Good Things from Other Magazines

The Resources and Possibilities of Russia

Russia lies prostrate; disabled; her great soul suffering the torture of helpless anguish. For a time, overcome with joy through the release from a load of oppression which had weighted her down for centuries, she could give no coherence to her actions, and ere yet the meaning of her regeneration was known over the country, hirelings of her enemies gathered the ignorant, the weak, and the poor and created a chaos which has brought the struggling giant to the verge of destitution,—the prey of famine and pestilence.

By R. C. MARTENS

(From a pamphlet published in New York)

FEW people can have an idea of the vastness and immense resources of Russia. With an area of millions of square miles, comprising a sixth of the whole land surface of the earth, it represents the greatest single country in the world, and holds the largest white population. North and south it extends from regions of perpetual ice to torrid lands, covering within its bounds every kind of climate and every kind of soil, while fifty races speak their several tongues, and follow their several customs; but generally with one common mind, enveloped in what is recognized throughout these vast areas as the Soul of Russia.

But the very size of Russia has interfered with its rapid development. Only about fifteen per cent. of the people live in the towns and cities, and the remainder of the vast population, which totals something like 180 millions, are scattered over the great domain in small communities, entirely occupied with the cultivation of the soil. To connect these tens of thousands of settlements with the cities and with each other would require practically unlimited roads and railways, which at best can only be achieved by the slow process of decades or even centuries. Meanwhile the growth of the population had been the greatest in the world, causing frequent movements of the peasantry, and wide variations in the comparative population densities, with consequent difficulties in balancing trade activities with the means of communication. But Russia would have successfully grappled with these problems had it not been for the long series of political troubles ending in the great revolution, and finally the terrible chaos brought about by the Bolshevik leaders and the appalling crimes of Germany. Dark and drear is the present picture of this great country, but there is no need to despair, for the blackening clouds must of necessity pass away before long in accordance with natural laws which never fail. Further storms there will be, and the blasting effects of treachery and crime have not yet ceased to destroy their victims. To interfere with all this we are almost helpless, but we may be in time to alleviate much misery and to help the millions of struggling tillers of the soil to lend a strong hand in the regeneration of their country.

The Backbone of Russia

The backbone of Russia is the peasants, who represent 86 per cent. of the population, and whose history as free men goes back only to 1861, when serfdom was abolished, and the peasants were provided, or were supposed to be provided, with sufficient land for their existence. Before the war the ownership of land in European Russia was distributed as follows: The Crown and the State, 35 per cent.; the peasants, 35 per cent.; private landholders (chiefly the nobility), 14 per cent.; all other private landholders, 12 per cent.; and the church and its institutions, 4 per cent. Thus the peasants, representing nearly 90 per cent. of the population, possessed only a third of the land.

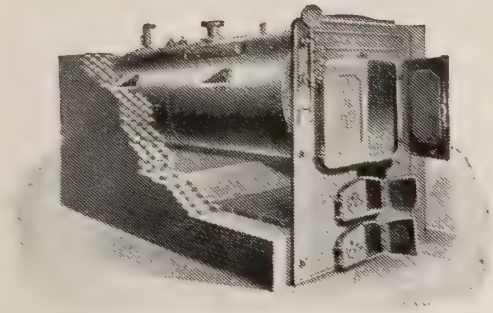
Two Systems of Holdings

The peasants' land was held under two different systems —communal and individual holdings. Under the communal system each village owned all the available land, pasture and forest, within a given area, this being divided among the peasant families for cultivation, the number of male workers in each family being considered in the distribution. The land so distributed was held by the respective families for a number of years, varying in different localities from fifteen to twenty-five, when it was redistributed to meet the requirements of the increased population. In addition each family had a small piece of land allotted to it permanently for the purpose of building a house. The collective body of peasants formed the authority (known as the Mir) for dealing with the land. The peasants were unable to sell or rent the land. Under the system of individual holdings the peasants were given, in perpetual tenure, special allotments out of the land allotted to the villages where they lived, and also the use of a fixed share of the communal land. A peasant family in this class could sell or rent its allotment. Under both systems the land was allotted to the family and not to the individuals. In 1905, 76.9 per cent. of the households had land under the communal system, and possessed 82.7 per cent. of the whole land allotted to the peasants. These figures show that the communal system has had a very marked influence upon the whole structure of Russian economical and social life.

When the land was given to the peasants in 1861, they had to pay for it under both schemes. The payment was by annual instalments, the obligation and responsibilities being with the villages and not with the individual holders. This meant that even those peasants who had separate holdings could not claim the ownership of them until all the members of the village had met their obligations. Under both systems the peasants were much hampered in their activities by the small size of their holdings and by the numerous taxes. The Government realized the necessity for assisting them, and in 1882 established the Peasants' Land Bank,

E. Leonard & Sons, Limited

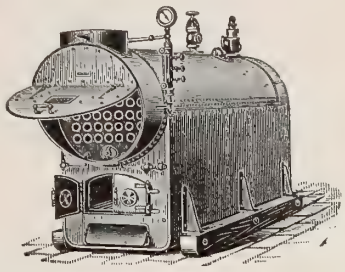
LONDON . . ONTARIO

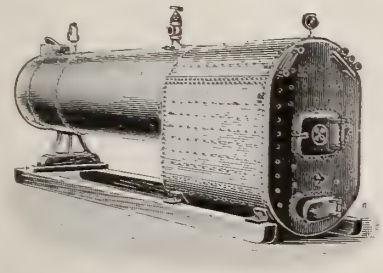


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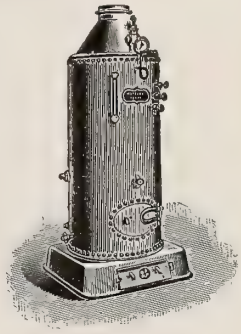
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through the medium of which the peasants could buy land from the large landowners. The plan was not, however, very successful, and the position of the peasants grew worse every year, arrears of payments accumulating and leading to many forced sales by the Government. Then a further reform was brought about. In 1905 the Government commenced purchasing land and selling it to the peasants on favorable terms, and in the following year they offered the Crown domain lands and the unoccupied State lands in European Russia for sale to them. About the same time the accumulated arrears of payments for land were allowed to lapse. All these measures tended to break up the village communal system. By ukases of 1906 and 1910 peasants were further assisted to secure individual ownership of the land, and many villages were completely converted from one system to the other. The general result was that in 1912, 1,700,000 householders had purchased about 32 million acres of land, and 3,609 village communities had become individual freeholders. By May, 1914, the individual owners had increased by 200,000.

Peasants Were Unfortunate

The results of the new conditions were not always beneficial, for many peasants sold their holdings soon after acquiring them, and lost the money, having then to work as agricultural laborers, or go into towns to labor at the factories. In some districts twenty-five per cent. of the peasants became unfortunate in this way. The peasant working under the communal system sometimes lacked the means and skill necessary for success as a freeholder. Instead of using community-owned implements he had now to buy his own, and he knew nothing about markets.

The value of Russia's agricultural production before the war was twice that of her industries, while two-thirds of these were concerned with agricultural products. About half the annual turnover of trade was derived from agriculture, and five-sixths of the foreign trade came from the same field of operations. Unfortunately the equipment for carrying on agricultural work was entirely insufficient, though a marked improvement had been observable in late years, both in the home production and in the importation of agricultural machinery, while the demand for fertilizers has been gradually growing. Governmental assistance of the farmers also largely increased during the years immediately preceding the war. While the Department of Agriculture disbursed only two million roubles in 1895, it spent fifteen times that sum in 1913; and the expenditure for the ten years, 1903-12, exceeded the total spent in the previous sixty years. The agronomical centres established during the present century so increased that by 1913 there was a total of 1,675, while agricultural colleges increased in number from 82 in 1895 to 360 in 1913, and the students from about 4,000 to 18,000. Also, while there were only 27 experimental stations in 1895, in 1914 the number was 240. In helping along these advances the co-operative societies have done much, and they are likely to have an enormous influence in the future, for they have been growing so rapidly since the war as to have become almost unwieldy. There had already been an extraordinary extension of the activities of these societies before the war, for they grew in number from 175 in 1895 to the enormous total of 4,685 in 1914, while the number of agricultural societies rose in the same period from 7 to 1,254.

The Black Soil Belt

The most important zone from an agricultural point of view is the black soil belt, which in European Russia comprises more than 270 million acres. The width of the belt varies from 200 to 500 miles, and it runs from the Roumanian border across the Urals, and as far as the Manchurian

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border of Lake Baikal. The soil is similar in character to the prairie soil of North America, and the Steppe soil of Hungary, and is excellent for wheat growing. But altogether there are many varieties of soil in Russia, no less than eighty-seven different types of plough being in use.

Russia's Agricultural Production

The world's statistics of production in agriculture show that Russia plays an important part. In the last year before the war she raised the largest quantity of wheat with 294 million quintals (metric), the U. S. A. coming next with 214 millions, the total of all the exporting countries being 848 millions. Russia also headed the list of producers of rye with 300 million quintals, Germany taking second place. In oats and barley Russia also led the way, yielding 189 million quintals of the former, and 100 millions of the latter, the U. S. A. being second in both cases with 183 and 42 millions respectively. In all, Russia produced 20 per cent. of the total cereals of the world, represented by 19 per cent. of the wheat; 24 per cent. of the oats; 48 per cent. of the rye; and 32 per cent. of the barley. Winter wheat in Russia grows in a belt running northwest and southeast, the average harvest of winter cereals being 66 million quintals. The distribution of summer wheat, as one would expect, corresponds closely with the black-soil belt. The average harvest of summer wheat in European Russia in recent years has been about 120 million quintals. The total area under wheat is about seven million acres. Rye is cultivated chiefly in northern and central European Russia, and oats are sown mostly in the north and northwest districts. Barley is grown chiefly in the north where it is able to ripen in the comparatively short summer, and in certain parts of the south where it successfully withstands drought. Corn is grown on about eight million acres in the southwestern district of Russia.

The area of land planted with potatoes in European Russia approximates four million acres, and the production, excluding Poland, reaches 260 million quintals, of which ten per cent. was used in the distilleries. Poland takes the lead of the provinces in potato growing, 18 per cent of the arable land being given to the crop. Next to Poland comes Lithuania with 10 per cent. of the land sown. The export of potatoes was increasing every year till war broke out. Of the other products of the soil a few may be mentioned. Flax is cultivated everywhere in European Russia, the Caucasus, and Western Siberia. In the black-soil districts of the south the variety grown is known as *candriach*, which produces seed containing abundant oil, but in the north the flax is grown principally for the fibre. The leading buyers of Russian flax were Great Britain, Germany, Belgium, France, and Austria-Hungary, the most important distributing centres being in the Baltic provinces. Sugar-beet is another specialty of Russian agriculture. It is grown chiefly in the southwest corner of Russia, the centre of the industry being Kiev. In 1913 beet was planted over 1,870,000 acres, the resulting production being 121 million tons. The mean content of sugar in the beet varies from 15.9 per cent. (Kuban) to 20.9 per cent. (Kiev), the average for the whole of Russia being 18.98 per cent. Russia exported about 54,000 tons of sugar in 1913, mostly to Finland and Persia, while the internal consumption was nearly a million and a half tons a year.

Stock Raising in Russia

It is perhaps natural, considering her vast area, that Russia should occupy a leading place in stock raising. In European Russia there were before the war over 21 million

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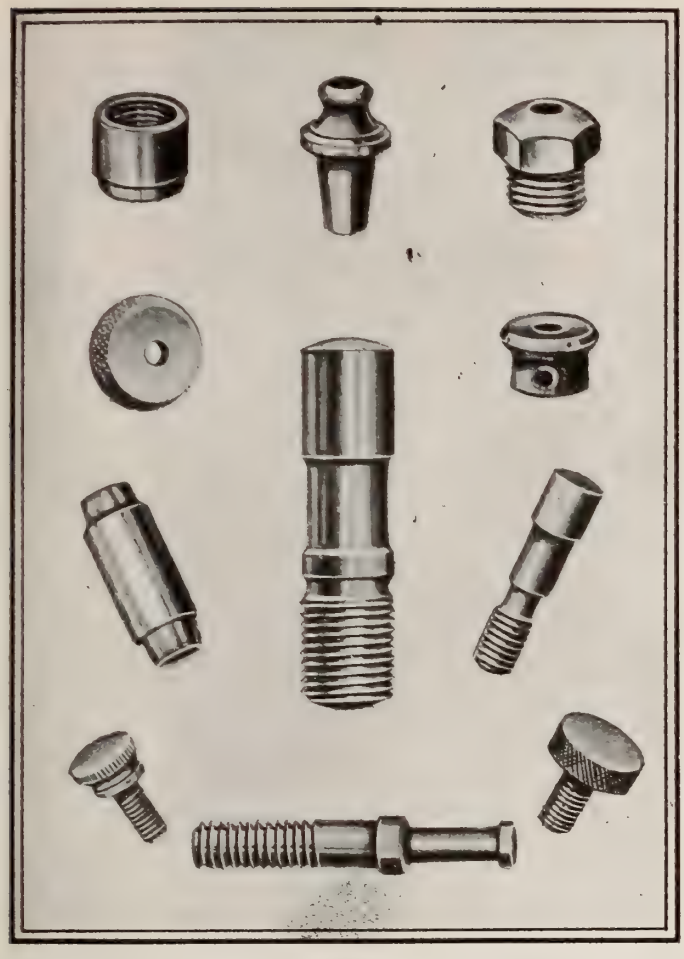
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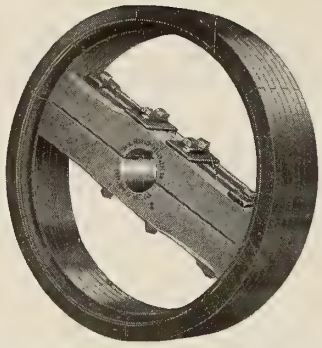
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horses, 31 million head of beef and dairy cattle, 37 million sheep and goats, and 11 million pigs. Russia thus leads the world in the number of its horses, the United States coming second. The general desire of Russians to improve their breeds of cattle has been noteworthy of late years, and doubtless when things have again settled down and agrarian reforms have been accomplished, there will be a marked development in the cattle-breeding industry.

Industries

At the time of the last industrial census in 1908, there were in Russia 19,833 industrial undertakings with 2,168,000 workmen, and the production was over four and a half billion roubles in value. The most important industry was naturally that connected with the production of food products, which accounted for a billion and a half roubles, including the milling of cereals, which alone produced 398 million roubles, the annual value of the wheat flour being 356 millions. There were over 20,000 flour mills in operation for the supply of the larger towns, and many more smaller mills were scattered through the villages.

The textile industries took second place in Russian production. The annual value of cotton goods produced reached a billion roubles, or seven-tenths of the total textile fabrications, and a fourth of all the goods manufactured in the country. In the last quarter of a century the quantity of raw cotton employed had increased about two and a half times, and in 1913 Russia already supplied 54 per cent. by home grown cotton, the import amounting to 46 per cent., principally from America, and chiefly through German ports. In 1916 there were over eight million spindles in operation by a hundred firms, and in addition there were 204 weaving factories, with 193,000 looms, and 86,000 Dobby and Jacquard machines. The annual output of yarns was 310,000 tons, and of cotton cloth 250,000 tons. The most important centre of the cotton industry was the Moscow district where was three-fifths of the total spindles. In the Vladimir and Kostroma Governments cheap cotton prints were the chief products, while the Lodz district in Poland was famous for its heavy goods.

The woolen industry annually produces goods worth about 275 million roubles, the Petrokov and Moscow Governments accounting for three-quarters of this. Of the lower classes of wool Russia had an abundant supply. It came chiefly from the Steppes and Central Asia, and reaches the manufacturers over the Trans-Caspian railway. A certain quantity of woolen yarn was imported, two-thirds of this coming from Germany and the remainder from England. Another important industry of Russia was that of flax, of which she produced two-thirds of the world's consumption, and more than half of this was exported. The principal centres of this industry were the Vladimir and Kostroma Governments, a subsidiary rôle being played by the Governments of Warsaw, Yaroslav, and Petrograd. In comparison with the flax industry that of hemp was small. The chief hemp product was canvas for bags, the demand for these being nearly all satisfied by home production.

Minerals

The third group of manufacturing industries in Russia was that related to engineering and metallurgy. Apart from the preparation of semi-manufactured iron and steel goods, the production of which was valued at 202 million roubles annually, the chief section of this industry comprised locomotives and railway cars, of which 85 million roubles' worth were produced. General engineering products totalled 73 million roubles; those of the railways, 71 millions; rolling mills, iron and steel wire, etc., 45 millions; agricultural ma-

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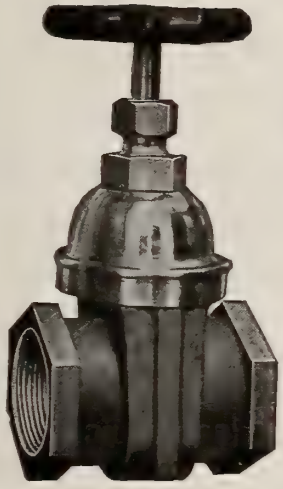
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chinery, 26½ millions; and copper, brass goods, etc., 30 millions.

The most important mineral is of course coal, and in respect of her investigated coal reserves, Russia is second only to the United States. According to the estimate of the International Geological Congress, she possesses in the Donetz basin more than three times the reserves of anthracite in England, and nearly twice the quantity at the disposal of the U. S. A. But in output of coal Russia ranked only sixth of the producing countries, though from 1865 to 1910 her production increased from 300,000 to 24 million tons, or about eighty-fold. The corresponding figures of England are 100 and 254 million tons respectively; of Germany, 28 and 220 millions; and of the U. S. A., 25 and 440 millions. It is obvious from the available information, that with proper development Russia would climb into a leading place as a coal producer.

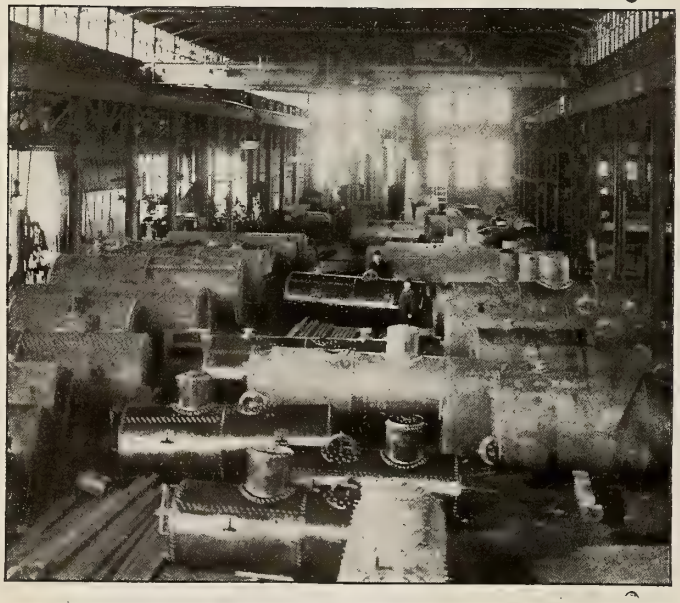
The chief districts for the supply of oil in Russia are the Apsheron Peninsula; the oil fields of Grozny and Maikon in the northern Caucasus; and the recently discovered Emba field in the Ural Province. The centre of the Apsheron Peninsula fields is Baku, and the output of this field in 1913 was no less than 60,000 tons. South of Baku is the field of Bibi-Eibat, which it is estimated will produce eventually 150,000 tons annually. There are many other fields, and the possibilities of Russia and Siberia in oil production are apparently unlimited, judging from geological investigation, and she must of necessity long retain her position as the second largest producer in the world, if indeed she does not climb into the foremost place.

Russia has always been a producer of copper, and up to 1858 she was not only able to supply her own demands, but also exported a fair quantity. After this year and until 1878, the consumption rose at such a rapid rate that a considerable quantity of the metal used in the country had to be imported. For some ten years thereafter there was a decrease in the consumption, but it then increased again till the annual importation reached about 15,000 tons. From about 1907 to the outbreak of the war, however, the production of copper had so progressed that Russia was able to satisfy most of her demands, and when the mines are fully going again she will no doubt be in a position to export the metal once more. In 1913, the Russian output of copper represented 4.4 per cent. of the world's production, two-thirds of this coming from the Ural Mountains.

Russia is very rich in iron ores, having practically unlimited quantities at her disposal, but owing largely to the lack of proper equipment and plentiful ways of communication, she has not been able to develop the iron deposits very extensively. Nevertheless she occupied fifth place among the nations in the quantity of iron smelted, and sixth in the quantity of ore produced. The principal iron deposits are in the Urals, where hills of solid magnetite exist, but at present South Russia leads the way in production. Considering the rapidly increasing importance attached to manganese in the iron industry, it is worth noting that Russia was the largest producing country of this material. The other minerals of Russia, as for instance, platinum, of which she produced 95 per cent. of the world's production; gold, asbestos, and so on, have been produced in an ever increasing quantity of late years, while the vast gold fields of Siberia, and the great mineral belts of this country and the Caucasus, have scarcely yet been touched.

Russia possesses a greater area of forest than any other country, and after the war it seems probable that her timber

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will play a very important part in rebuilding the general industries of Europe. Indeed for some years before the war it was noticeable that there was a steady increase in the export of timber, comparing strangely with the fluctuation in the cereal export, which was largely owing to experiments in agrarian reform. After the war the introduction of very striking reforms will no doubt interfere further with agricultural development, but these are not likely to affect the timber trade. The only countries which are able to export timber in any quantity are Russia, Canada, U. S. A., Sweden, Norway, and Austria-Hungary; but Russia, with two billion acres of forest, possesses 47 per cent. of the combined timber resources of these countries, Canada coming second with 27.8 per cent.; U. S. A. with 21 per cent.; Scandinavia, 2.3 per cent.; and Austria-Hungary, 1.9 per cent. In fact, with the acute timber shortage after the war, Russia may be recognized as the hope of the situation, for America will probably require most of the timber she can get for her own industries, and the export of timber from North to South America is rapidly growing. The Scandinavian countries play an important rôle in the European market, but they have exploited their resources to such an extent that it will be impossible to increase their output without encroaching upon the capital value of their forests, which indeed is now being done consequent upon the prevailing high prices. The export situation of the chief timber producing countries can be gathered from the statistics for 1913, which show that Russia exported more than three times the quantity of any other country. The comparatively low price of Russian timber shown in these figures is explained by the large quantity of cheap unworked timber sent to Germany.

Russia's imports in 1913 had a value of 1,374 million roubles. Of this sum, 652 millions' worth, or 47 per cent., came from Germany, made up, in order of value, of ores, metals and metal manufactures, textiles, animal products, fuel and allied products, soft goods, and paper. Next to Germany, England was the largest exporter to Russia, her total being 173 millions, made up chiefly, in the order named, of fuel and allied products, metals and metal goods, textiles, foodstuffs, animal products, and chemical products. It is noticeable that while the value of machinery and metals sent by Germany to Russia was 236 million roubles, England shipped only 48 millions' worth. There was much the same proportion in respect of textiles, the figures being respectively 131 and 33 millions. Next to England, China was the largest exporter to Russia, her total being 84 millions, chiefly of foodstuffs, of which half was represented by tea, this accounting for 36 millions. The imports from France during the year totalled 57 million roubles, textiles being the principal item with 23 millions. It is not necessary to go into further details of these figures, but it should be mentioned that the sum total of the imports into Russia from the principal allies in the war, namely, England, France, the United States, Italy, and Belgium, amounted to only half those from Germany.

Germany Takes Most Exports

In regard to exports from Russia, Germany again takes first place, accounting for 652 million roubles out of a total of 1,520 millions, made up chiefly of cereals, butter, eggs, and other food products; timber, flax, seeds, leather, hemp, furs, oil, and cattle. In the same year England took 268 millions' worth of Russian goods, these being the same character as those sent to Germany. The most important of the exports to England was timber, nearly fifty per cent. of her total requirements in this commodity coming from Russia. France took from Russia cereals chiefly, but it is observable that 73 per cent. of Russian platinum exported went to this country.



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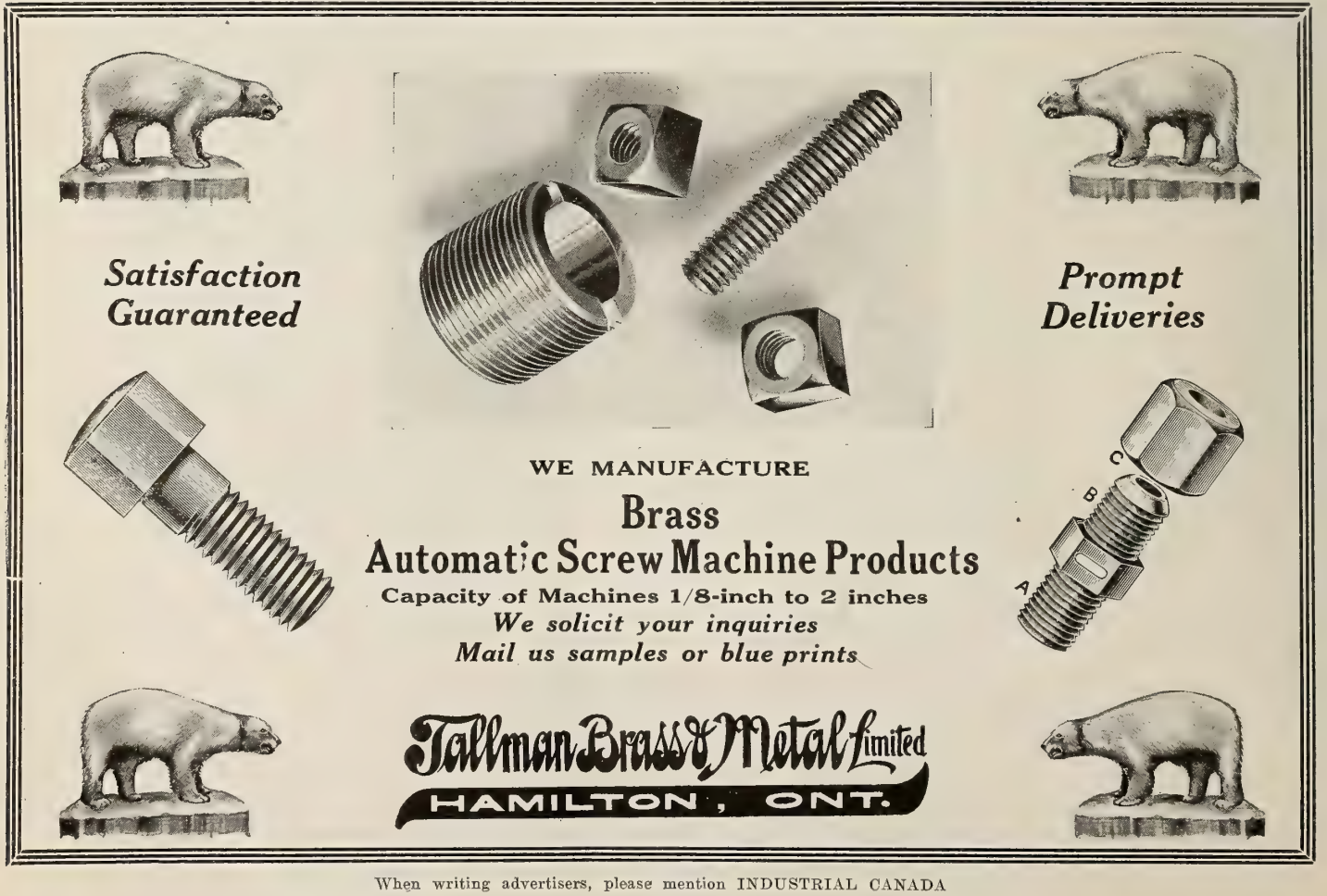
Of the other Allies, Italy took a large quantity of wheat, and Belgium of flax. The small share of Russian exports taken by the United States is noticeable. It is accounted for by the limited imports from America, a condition which will no doubt soon be changed.

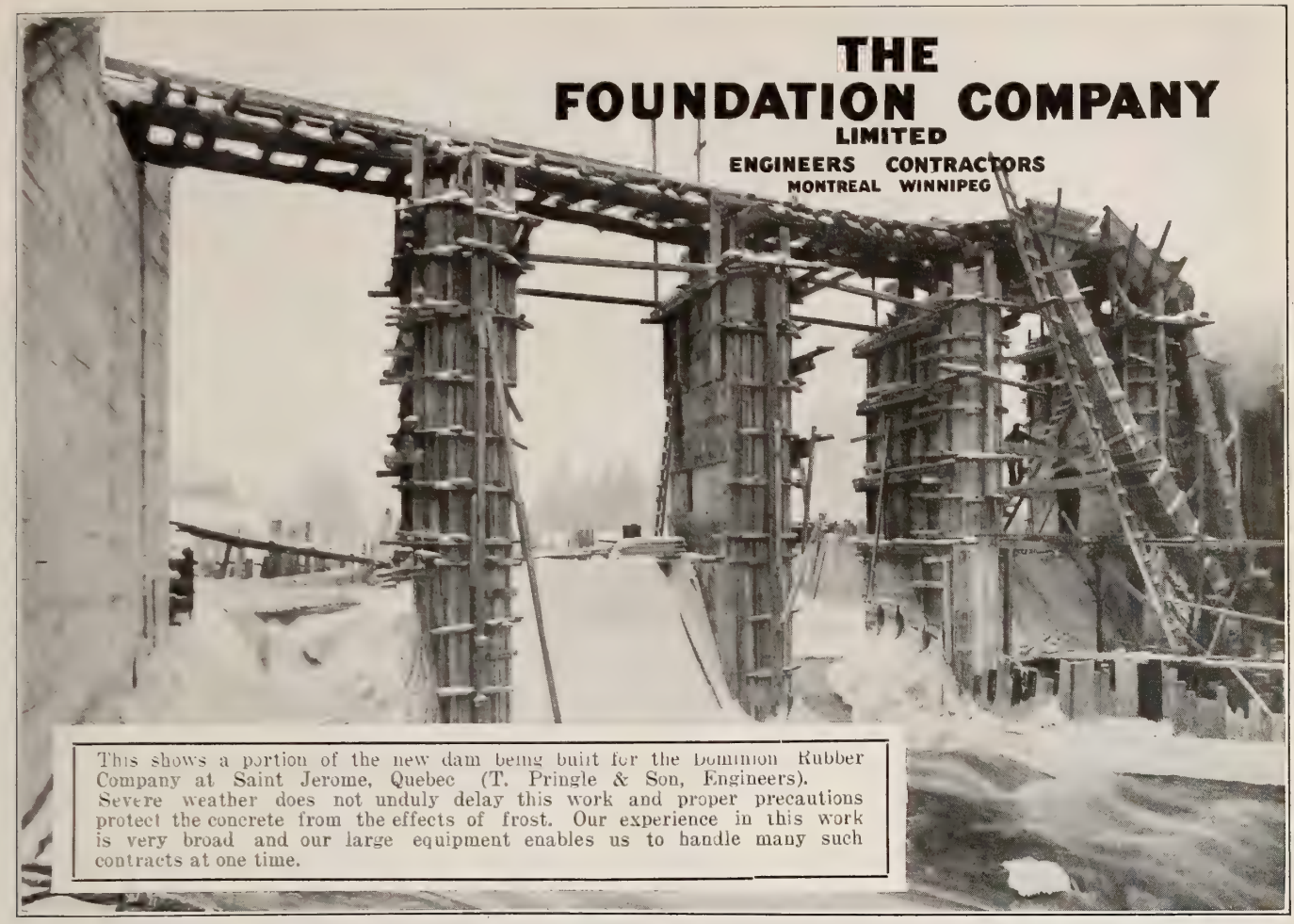
Conditions During the War

The imports into Russia, amounting annually to 750 million dollars in value, were received principally through the ports of the Baltic and the Black Sea. The war immediately sealed up these ports, and Russia was left with only two ports, one in the White Sea—Archangel, and the other at Vladivostok, thousands of miles away. The former port was little used before the war, and was consequently not equipped to handle large imports, and in any case, owing to the ice, it was practically closed from the middle of October to the early part of June. Vladivostok was too far away to be of great consequence from an economic point of view, and the result was that at the outbreak of the war, Russia was faced with a serious condition. She had a war front of 6,500 miles to guard against one of the most highly developed countries in the world, and not sufficient equipment for a third or a quarter of the army she had to call into the field, while the available ports were insufficient to handle a fraction of the war materials it was necessary to import. All the home industries had therefore to be re-equipped for the manufacture of war requisites. But some of the most important industrial districts, as those of Poland and part of the Baltic areas, were invaded or threatened with invasion, and the authorities were compelled to remove a large part of the industrial plants into interior towns, which meant much disorganization, and accentuated the shortage in the industrial capacity. Thus the country was in this position: the home industries could only meet a portion of the requirements of the army, and the two available ports were of comparatively small use for dealing with the balance which had to be imported. Consequently the supply of manufactures necessary for meeting the ordinary demands of the country apart from the war were practically cut off altogether.

What did all this mean? The farming population, representing 86 per cent. of the whole, found it difficult in the third year of the war to repair their implements or to buy new ones; the railways were breaking down for want of ordinary tools, and in consequence flour mills could not obtain fuel, immense districts quickly becoming short of food and appliances for cultivation. The South, which relied upon the North for its timber, could get none, and the North, which relied upon the South for its sugar and grain, could no longer maintain itself adequately. The factories in the north had soon to burn timber instead of coal, and later on had often to close because raw materials were not to be had through the lack of transportation. These were the conditions existing at the outbreak of the revolution, in a country having the largest white population in the world. At the start of the revolution a firm attempt was made to reconstruct the industries, but it was impossible to remedy quickly a shortage created by three years of non-supply. Then came chaos worse confounded by the Bolsheviki seizure of government, which was rendered possible only by the appalling condition of the country.

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PROGRESS OF RESEARCH WORK

In the following article, Dr. Macallum reviews the work of the Canadian Honorary Council for Scientific and Industrial Research during 1918, and shows that the main task of the Council, while carrying on the immediate needs of research work with the means at hand, has been to pave the way for meeting adequately the urgent needs of the future.

By DR. A. B. MACALLUM

(From "Toronto Globe's Annual Review Number.")

"Reconstruction and Development" in Canada in the new era of international girding for supremacy in the arts of peace means to the Canadian Honorary Advisory Council for Scientific and Industrial Research much in so far as "development" is concerned, but little in regard to "re-construction." Re-construction postulates the building up again of what existed before; and up to the outbreak of War there was constructed in Canada no national organization for research work. The glowing path of Canada's opportunity for industrial development runs wide and far, but the Council's research path has to be blazed through a comparatively unexplored forest. It is almost entirely new ground to be covered.

Where Germany and, though perhaps in lesser degree, the United States had builded before the war great organizations for industrial research founded on wide-visioned realization of the commercial value and necessity of applying science to industry, in Canada, as in Great Britain, state encouragement and individual enterprise had, until the war started, been content in the main with a laisser-faire policy. Germany had her trained technologists and research workers by the thousands in every field of industry, and, through the organized application of science to industry, was winning her trade victories in every foreign mart.

University Research in U.S.

In the United States, which early took a leaf from Germany's book, the great Universities like Harvard, Yale, Chicago, Columbia and Cornell had staffs and equipments in pure and applied science, which kept pace or almost kept pace with the demand from great American industrial establishments for training scientific investigators, chemists, electrical engineers, metallurgsts, etc., to solve industrial research problems. The annual budget of the Massachusetts' Institute of Technology, for instance, exceeded before the War, and still exceeds, the total of the annual expenditures of all the Faculties of Applied Science in Canada. There are some two thousand research laboratories in connection with large industrial concerns in the United States, and each of more than fifty individual firms expend annually sums ranging from $25,000 to $500,000 for research.

In Canada in a score of years less than twenty students have received the advanced (Ph.D.) degree in science from the University of Toronto and fewer still from McGill. Not two per cent. of Canadian firms have research laboratories and only about ten per cent. have routine laboratories, chiefly for the testing of materials. If Canadian industries were to seek for a supply of trained technical men capable of applying the most advanced scientific knowledge to industrial processes sufficient to meet even their most ordinary needs, the number of adequately trained men available would not be sufficient to satisfy five per cent. of the demand.

That, briefly put, is the situation with regard to the needs in Canada for equipment and men for research work. That is the situation that has confronted the Research Council since its creation in December, 1916. And that has been,

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and is, the crux of all problems of scientific and industrial research in Canada, handicapping the carrying out of the large research programme planned for the past year and for the coming year, jeopardizing Canada's position in the international rivalry for export trade and demanding prompt remedy if the full measure of our opportunity is to be grasped. In resources of capital and materials, in all the natural advantages for industrial supremacy we are in an enviable position as compared with our trade competitors. But in regard to the vital question of scientific organization of our industrial processes of finding new uses, hence new markets for the raw materials and the by-products of manufacture, and of keeping pace with the advances made in other countries through research, we have as yet hardly touched the fringe of opportunity.

Paving the Way

Confronted with this situation and with a slowly awakening public and individual realization of its portent, the main task of the Council this past year has been, while carrying on the immediate needs of research work with the means at hand, to pave the way for meeting adequately the urgent needs of the future. The goal has been a supply of trained men for research work, adequate equipment and facilities for research and the enlistment of industiral organizations in co-operative effort to solve common problems, the solution of which lies in the application of science to industry.

The great forward step taken has been to promote the establishment of a Central Research Institute at Ottawa, combining the functions of the Bureau of Standards at Washington and of the Mellon Institute at Pittsburgh.

The proposal for such an institute, submitted to the Government in November last, was the result of many month's careful investigation by the Council.

In view of the situation above outlined, the argument advanced in support of it is so obvious as to need no re-statement here. There has been a prompt and appreciative response to the proposal by the Government and by all the public interests concerned. There is good reason to believe that the Institute will be established without any unnecessary delay. It will involve an expenditure of $500,000 for a four-storey building, having initial provision for fifty laboratory rooms and with plans so drawn as to provide for expansion as the needs develop. The cost of the scientific equipment is estimated at $100,000, and the cost of maintenance, salaries, etc., at about $100,000 per annum for the first few years.

Trade Guilds

The establishment of the Institute is the necessary first step towards placing industrial research work in Canada upon an adequate and permanent basis and towards enabling the Dominion to keep abreast of similar progressive methods in the United States, Great Britain, Japan, France, Australia and our other trade competitors. It will, doubtless, be followed by the organization of trade guilds or associations for research in each branch of industry, formed to pool resources in solving common problems and to take advantage of the laboratory equipment and opportunity offered, under the Council's proposals, by the Government-maintained Institute.

Training of Scientific Workers

A further necessary step will be the working out of the Council's plans for more adequate provision by the Universities for the training of qualified scientific workers. In the more generous investment of state funds for this purpose, starting, say, with Toronto, McGill, and L'Ecole Polytechnique, lies the hope of securing for the ensuing years of the



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Apart from these crucial phases of the work and aims of the Research Council, space permits only passing reference to some of the many research problems already undertaken.

As a result of the Council's initiative, Governmental action was taken in June last to secure federal co-operation with the governments of Saskatchewan and Manitoba in establishing a demonstration plant in the Souris coal areas of Southern Saskatchewan, to prove the commercial feasibility of carbonizing and briquetting the Western lignites for heating, in domestic furnaces. This year will see a plant established with an outlay of $400,000 and an annual output of 30,000 tons of coal equal to the Pennsylvania anthracite and marketed in Regina or Moosejaw at, at least, two dollars per ton less than the imported anthracite is now costing. The success of the initial plant, about which there can be little doubt, will lead eventually to the development of the immense and little realized latent lignite resources of Saskatchewan and Alberta, relieve for Ontario and Quebec the present coal famine through limited American supply and save to Canada the five or six millions of dollars now annually going to the United States for coal for the prairie provinces.

Study of Growth of Trees

A systematic study of the rate of reproduction and growth of Canadian forest trees of the commercial species has been undertaken through scientific survey of some eighty square miles of an old cut-over lumber district on the Petawawa Military Reserve. The data being secured will in the course of a few years give, for the first time, the essential definite information enabling the Dominion and Provincial Governments to inaugurate on a scientific and practical basis a scheme of re-forestation paralleling the best results obtained in the past in Europe. Our forest wealth, now in danger of exhaustion through reckless waste and disregard of adequate conservative systems, can only thus be preserved as a great and permanent national resource.

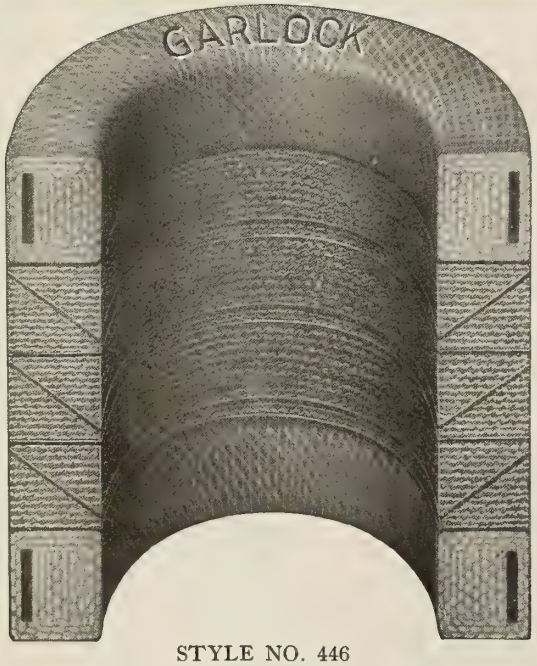
Tar Fog Research

The tar fog research, initiated in 1917, has been continued with satisfactory practical results which will doubtless lead in the near future to the application to various plants in Canada of a new electrical process for the recovery of valuable by-products now lost in the destructive distillation of coal, wood, etc.

The research on sound measurements and fog signalling conducted in 1917 by Dr. Louis King, of McGill, has made further progress this year and forecasts a new type of sirens for use on the St. Lawrence River and Gulf.

Research work connected with the recovery of industrial alcohol from the enormous sulphite liquor waste of our Canadian pulp mills points to the installation of recovery plants and the production in Canada, at decreased costs to consumers, of the alcohol increasingly needed for industrial purposes and as a substitute for motor fuel.

There has been a score or more of other phases of industrial research initiated or continued during the year, each having a practical bearing on some branch of national production. More should and could be done, were trained men and money available. The Council's budget for the year has been under $100,000. In Great Britain, Parliament has recognized the need and the opportunity by creating a separate Department of Scientific and Industrial Research and has voted one million dollars per annum for five years to be expended by the Research Council. In Canada we, too, are learning the obvious lesson taught by Germany and already adopted by British industry. The path has been blazed for replacing rule of thumb methods in Canada by Scientific investigation.



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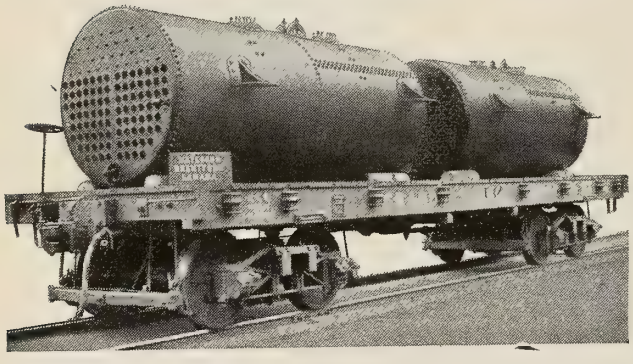
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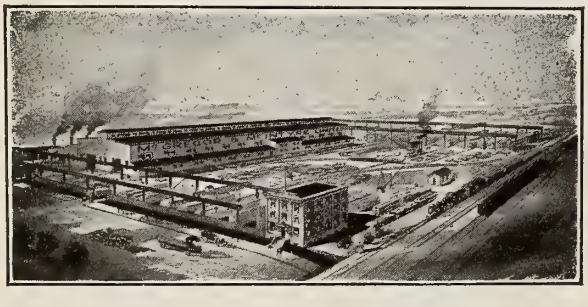
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OFFSETTING INDUSTRIAL UNREST

One of the instruments that is gaining recognition because of its possibilities for bettering conditions in many ways is insurance. The war has popularized insurance as nothing else could. In the following article the claims of group insurance are put forward as a power to reduce labor turnover and produce increased output.

(From the "Michigan Manufacturer.")

There are two kinds of dissatisfaction in the ranks of labor. One of these, the troublesome variety, is to be found among those men in all stations of industry who never desire to have anything settled, who either thrive on disturbance and dissatisfaction or else clamor everlastingly for a complete overturning of all established practices whereby men bargain with one another for the necessities of life. The existence of such men within the race will always make it impossible to conduct human relations without warfare or strife of various kinds.

The other sort of labor restlessness is founded in a healthy desire to progress, to follow the instincts of ambition within the breasts of all worth-while workmen of high and low degree, to make life a little easier, better and more enjoyable by establishing conditions which tend to overcome the barriers to health and well being. These are the sort which are in the majority in the United States, calamity criers and the revivified pamphleteers and propagandists notwithstanding.

As men differ so also do their methods vary. The march of progress has never been executed in double time. It has been deliberate, inspired and well planned. It has taken of the new things and conditions, as they revealed themselves, the best of each and put them into practice, first as an experiment, then, as the world saw their quality, as established institutions. Thus were we gradually rid of many retarding forces to progress. In this fashion disappeared the best established practices of the ages, the union between church and state, slavery, secret diplomacy, the divine right of kings, and in this fashion will disappear eventually class consciousness and the major causes of labor unrest. This must come about because labor disturbance is fast coming to take its place as one of the menacing forces to civilization. It is stalking about among the nations and upsetting the good works of many generations in a spasmodic effort to reach evils of varying importance.

Progress Being Quietly Made

The sacrifices made in the interests of bettering conditions among the nations have been too great, too general and too important to permit any one group or class, so-called, to wrest the reins of power from those who would serve all alike, in the vain hope of establishing a vague utopia for the benefit of a limited number of people in any country. That is the fallacy behind all socialistic and "red" uprisings which the world is now viewing as an aftermath of the great war.

Yet, while all these things are going forward, there is a class of men, unorganized and unknown to one another, usually who are united only in a bond of consciousness of the real necessity of the human needs, who are putting into practice without much comment or fuss, tried and valuable ideals which make for the betterment of all. Particularly is this true in industry. Despite all the villification, the dissatisfaction, the fluster over wages, living costs, rates for indispensable service and so many other things engaging our attention at this time and which another twelvemonth will all see adjusted as the deadening influence of war is shaken off, there is much genuine progress being made toward alleviating some of the conditions which are basically in need of adjustment.

One of the instruments which is gaining recognition because of its possibilities for bettering conditions in many ways is

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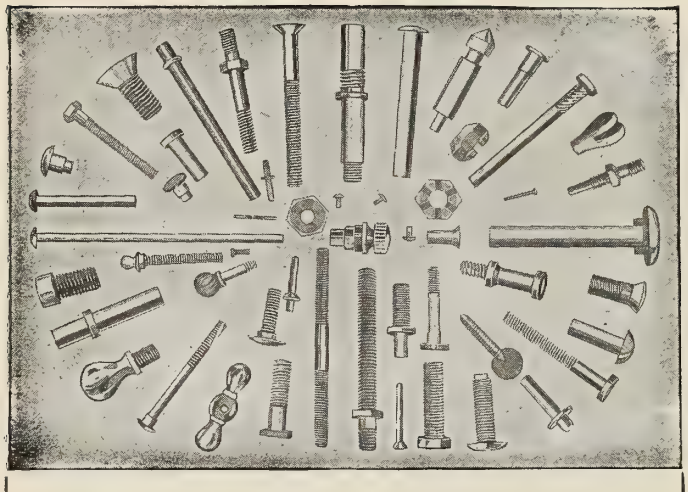
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insurance. The war has popularized insurance as nothing else could, just as it made bond purchasing a great national practice which, it is hoped, may remain as a national practice in the furthering of thrift.

It is a far cry from the beginnings of the insurance business to the practices and uses of to-day, when scarcely a phase of industry exists that cannot be covered and protected against the vicissitudes of fate and fortune. Business men protect their profits as well as their property; individuals guard themselves against every sort of accident or fluctuation of the things that mean continued existence to them, and now there are newer fields just developing.

Insurance vs. Labor Unrest

It has been a real achievement of imaginative genius, however, to invade the field of insurance and find therein a great force for cutting down labor unrest, human restlessness, labor turnover due to superficial causes and protection for the stability of business. This is what group insurance is doing.

Group insurance is the purchasing of policies covering accident, sickness, death of employes by a corporation. There are varying systems. Many organizations have had written policies of a definite amount, such as $1,000, for every man, regardless of his length of service or other considerations. Other companies have varied the amount, establishing a table of progressive figures and increasing the principal for each year that any employe remains with them. Costs are covered without the workmen being troubled about them, and the only time they ever feel the effects of the system is when misfortune overtakes them. Figures and statistics available in the offices of corporations and other organizations which have taken advantage of this comparatively new practice show a material decrease in unnecessary labor turnover and overhead and an increase in production.

At the recent meeting of the National Association of Life Insurance Presidents in New York, the subject of group insurance was discussed by Eugenius H. Outerbridge, former president of the Chamber of Commerce of the State of New York, one of the first men to see its possibilities. He speaks from the viewpoint of an industrial leader and capitalist, but there is much in what he says which shows the other side of the plan's workings, as it appears to the beneficiaries. His remarks in part are reproduced here:

"In a factory making a product which had been a new creation, and which therefore could not draw trained workers from the general field of labor, but which required intelligence and special care in all departments and educated skill in some, we had found our most serious difficulties due to an unexplained restlessness and constant shifting of men. We had no strikes, we had no complaint about working conditions, and only the normal occasional request from some worker for an advance in his pay.

Turnover of Labor Heavy

"We paid our men for 60 hours' work a week, but, as we voluntarily gave them Saturday afternoon as a half holiday, they worked only 55 hours and we received only that amount of production.

"For years it has been our custom to give Christmas bonuses of one week's pay to all who had been in our employ for one full year, and two weeks' pay to those who had been with us longer. Later this was advanced on a sliding scale, based on terms of employment, reaching four weeks' extra pay in the highest class.

Notwithstanding these arrangements we experienced a change in the personnel of our force averaging about 35 per cent. annually, due to no specific cause that we could discover

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except the restlessness of what we learned to call 'migratory labor.'

"It was too expensive training 35 per cent. of the force to have them leave just as they were becoming useful. New and untrained men meant a large proportion of damaged product. The constant changes meant loss of production and loss of production meant increased overhead, and heavy overhead often means the difference between a profitable or a losing enterprise.

"I began to study the psychology of labor.

"Gradually I became convinced that the solution of the industrial problem lay chiefly in the hands of the employers themselves; that enlightened self-interest dictated that the labor question should be viewed as a human problem fully as much as an economic one; that unrest would never be allayed by what labor might win by law or through the medium of unions; that industrial peace, prosperity and contentment in any specific industry would only be realized when the employer conceded as a freewill-offering to his employees, as to a partner in enterprise, an equitable share in proportion to the contribution that labor made to the net result of the business.

"But it was also necessary that labor should develop the steadiness of application, the interest and friendly confidence expected of a partner, to enable its contribution to be gauged and apportioned.

"Seeking, therefore, to find a way to bring about reciprocal feeling, to create a real interest on the part of the employees in their work and in their employer, and especially desiring to stabilize the group, I studied the effect of pension systems and other forms of benefit where they had been tried, without discovering results that gave me much encouragement.

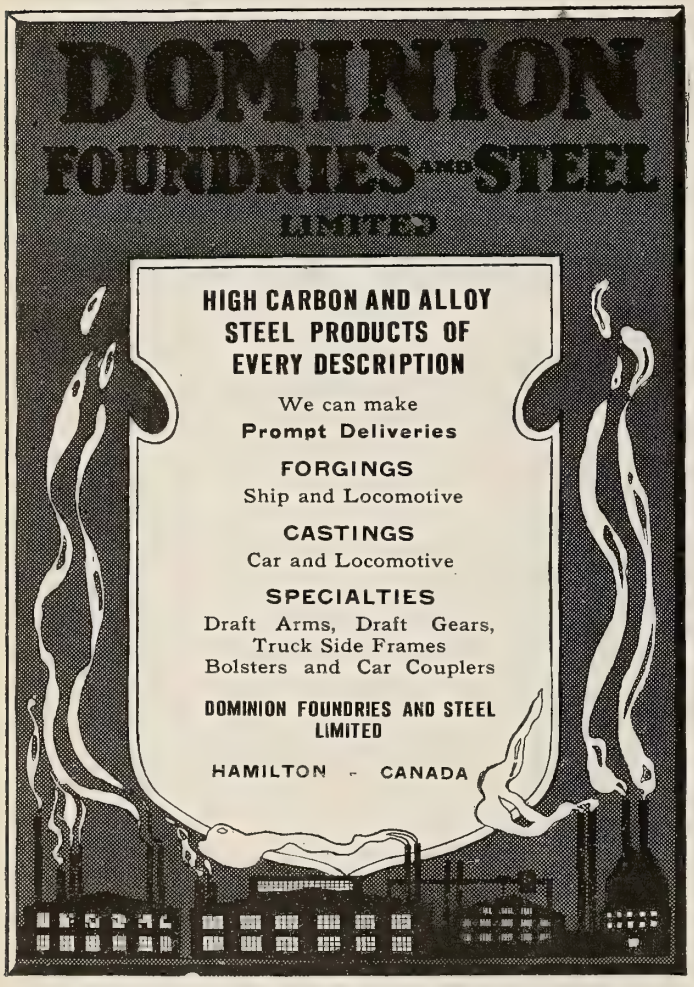
"I concluded that we must reach the home life and the families of the men, believing that through that influence a greater permanency in the employment could be secured.

"In this dilemma I chanced to discuss this situation in the year 1910, with Mr. Henry L. Rosenfield, and was informed that the Equitable Life Assurance Society then had under consideration the writing of group insurance, covering life, health and accident, and that he had been actively engaged in the study of its possibilities.

"The more I studied the plan outlined and the nature of the protection offered, the more I became convinced that the intrinsic value as compared to cost this was the very first step the manufacturer should take in any plan to stabilize and strengthen the relation between his employees and himself, for their mutual benefit and for the improvement of the business.

"The plan was finally concluded and the policies written in 1911.

"As many of the men were foreigners, a brief synopsis of the plan was placarded in several languages throughout the



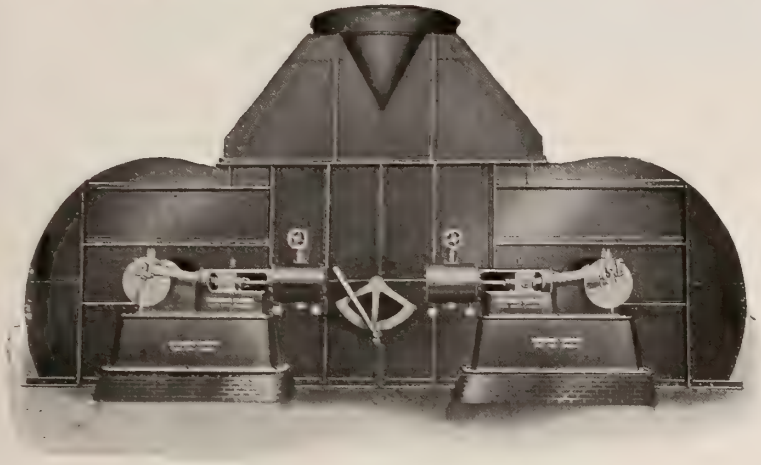




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plant and Greek and Hungarian priests were asked to address the employees in their native tongue, explaining the benefits and that it would cost the men nothing.

"I sometimes wonder if that at first made them value it at nothing. We thought they had understood it, but certainly for a while we saw no change in conditions.

"Our first claim was an accident case of minor character—a young man was hurt, was in a hospital for a week or so and then returned to work. When he opened his next pay envelope he found some money and a cheque—he asked the foreman what it was, and was sent to the office to find out. On being told that it was his insurance when he was laid up, he was very indignant, declared angrily he had not agreed to insure and would never pay anything. Unable to pacify him, the secretary finally said, 'Write your name on the back of that paper, and I will give you thirty-seven dollars and fifty cents for it.' 'What,' he exclaimed excitedly. 'You give me money for that insurance paper?' and then, when he had gathered up the bills, he rushed from the office shouting to the men in the yard, 'See, the company gives me $37.50 for having had my collarbone broken, being hit by the pitcher while playing baseball on Sunday.'

Some Instances

"It is needless to say he became converted to a friendly feeling about insurance.

"Our next case was a married man with six children, who broke his leg on the ice by jumping over a high fence instead of going out the gate. The several hundred dollars paid him in lieu of wages, which he had otherwise lost, and in settling hospital and doctor's charges made him more than a convert, a missionary indeed for this new and previously unheard of insurance that came to his own and his family's aid in the time of need; and then when the benefits were once experienced the fact that as long as he remained in the employ it cost him nothing, magnified, rather than minimized the value he attached to it.

"An occasional death claim occurred where larger sums accrued to next of kin, and by that time the men understood what this protection meant, and had talked enough about it to attract others to the plant seeking employment, and after a couple of years our labor turnover had decreased to about 15 per cent., while our production increased, and the proportion of seconds or inferior product showed a distinct reduction.

Group Insurance Justified

"Group insurance, therefore, justified itself both in business results and in humane benefits, which the employee felt flowed from the particular business organization of which he formed a part and which he could accept without feeling himself an object of charity. Thus, it may indeed be said, is 'Wisdom justified of her children.'

"Some of our employees could not have passed a medical examination for life insurance, and of those who could, many would not have had the forethought or thrift to do so.

"A study of the death claims in the two groups with which I am connected as an employer developed the fact that 53 per cent. had no other insurance whatsoever, and that 47 per cent. had insurance averaging only about $150 each. As our groups were relatively small, I have had this checked against the entire experience of the company carrying the insurance, and learn that these proportions represent a fair average. In fact it appears that about forty per cent. of all employees covered by group insurance have had no other protection.

"Think of forty per cent. of the wage earners of this country living without life insurance or any form of protection for themselves or for those whom they support! Thus

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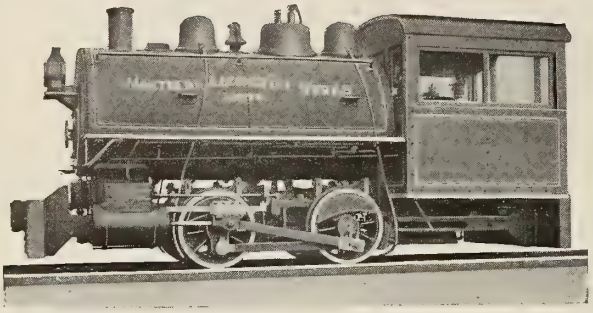
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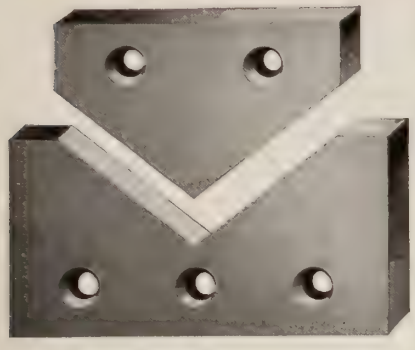
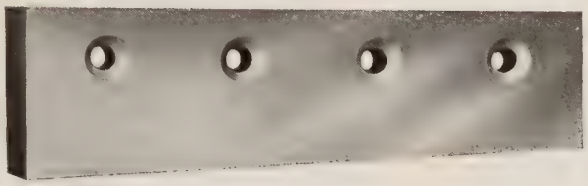
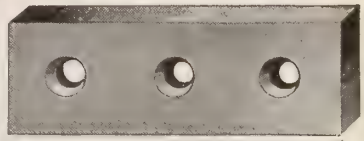
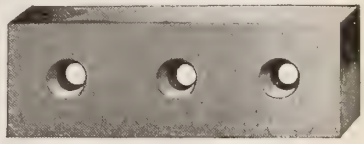
"It is not only a step further that the industry should pay something to the surviving dependents at the death of the breadwinner, at least sufficient to maintain them until they can adjust themselves to such changed conditions; and if employers do not recognize and do this voluntarily, it is more than likely that ere long the state will compel them to do so by legislation and the merit and value of a voluntary act will be lost."

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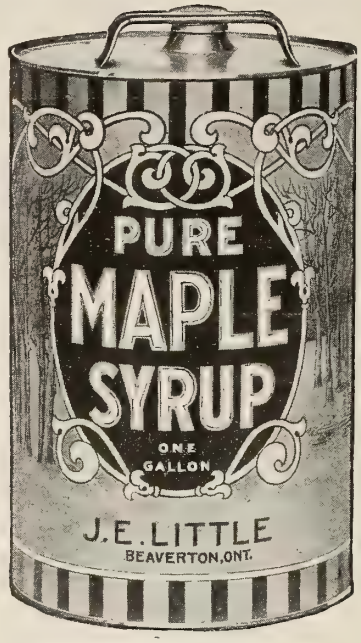
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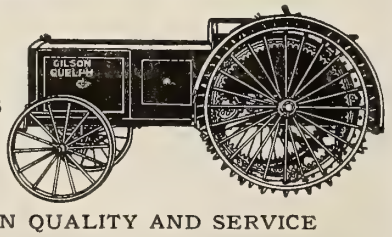
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ACID PRODUCTION IN CANADA

Acid-producing industries have passed through a period of activity and prosperity and must now readjust their output to peace requirements. Growth of Canadian market is expected to furnish larger demands than before the war, especially for sulphuric acid.

(From the "Toronto Globe.")

Canadian manufacturers of acids are now faced with a much narrower market than that which they had to supply during the war, and production has been correspondingly reduced. The current output of the Canadian plants manufacturing sulphuric acid is smaller to the extent of many thousands of tons a year as compared with the volume of war-time production. The huge requirements for the manufacture of explosives in Canada on this side of the Atlantic were probably five times the amount of the normal needs of the market for this product within the Dominion. Exportation of sulphuric acid across the Atlantic has been found to be not feasible, and this made necessary the production of the acid in Canada to meet war needs, and the corollary is the retention of any surplus product on this side of the Atlantic. The difficulties surrounding the shipment of sulphuric by water in drums have made it impracticable to find a market for the Canadian output outside of this country.

While the stoppage of war business has reduced the output to such a great extent, the outlook for the industry would appear to be brighter than before the war. Canada has grown industrially in many ways, and the Canadian consumption is likely to increase materially in the next few years. The closure of approximately two-thirds of the units that were manufacturing sulphuric acid for war needs has meant the release of a certain amount of labor, which has been unavoidable under the circumstances. The enlargement of the domestic market for sulphuric for commercial use is hoped to bring the total consumption 50 per cent. above the pre-war level in the not distant future.

A revival of activity in the building trades would mean a much larger demand for nails and a corresponding increase in the consumption of sulphuric acid for this purpose during the coming months. A Hamilton manufacturer of wire fencing stated that he would use 25 per cent. more sulphuric than in any previous year. His reason for the larger consumption is rather ingenious—namely that farmers have enjoyed prosperity, and will be willing to make improvements. Such preparations for increased business would seem to be justified by the business that has already been placed for this year. The larger demand that is anticipated from both the steel and textile industries is expected to enlarge the Canadian market sufficiently that a readjustment from war conditions can be effected without a great deal of difficulty. Consumers of sulphuric are not willing, however, to enter into contracts for longer periods, but they are limiting their commitments to the current year, as compared with contracts for as long as five years which were frequently made before the war.

In other lines of heavy chemicals manufactured in Canada the outlook is reassuring. A normal trade in caustic soda is anticipated, and the demand for chloride of lime for the paper industry promises to be healthy, in keeping with the prosperous state of the papermakers' business.

Viewed as a whole, the acid-producing industries of Canada have passed through a four-years' period of activity and prosperity, and must now readjust their output to peace requirements, and for sulphuric acid in particular the growth of the Canadian market is expected to furnish larger demands for the producers to meet than was the case prior to 1914.

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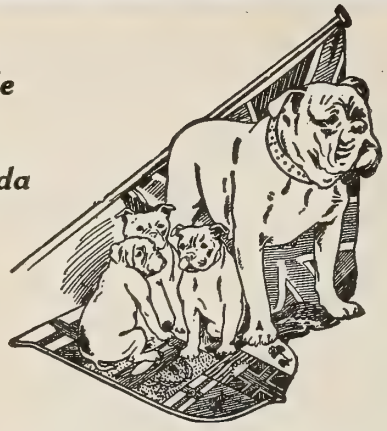
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FACTORY HEATING AND VENTILATING

The writer of the following, who is chairman of the divisional committee on ventilation of the U.S. Council of National Defence, advocates the ultimate passage of laws by the various states which would establish a standard for heating and ventilating factories and workrooms. In the following article he presents a general outline of requirements.

By WERNER NYGREN

(From the "Manufacturers' News.")

By analysis of actual conditions and experimental research the fact has long since been established that unless the indoor atmosphere is kept at a reasonable degree of purity, temperature and humidity it is detrimental to health and comfort. Obviously, therefore, every effort should be made to provide such atmospheric conditions as will produce the highest possible health standard and the necessary comfort for those who toil indoors, be their labor physical or mental.

It is well within the range of possibility to do this by diluting the indoor atmosphere with clean outdoor air and at the same time produce the proper temperature and humidity, and thus counteract both the chemical and physical changes occurring in confined air in which human beings live and work.

Consequently, there is no reason why the quality of atmospheric conditions in working quarters and elsewhere should not be a matter worthy of government control. The subject has and is being agitated, but is not as yet sufficiently well understood to force itself to the front to be universally adopted.

Incidentally, a reasonable standard of purity and comfort is conducive not only to the health but it also increases the working efficiency. No special apprehension need therefore be felt that any inordinate expenses will be involved, since proper provisions of this kind usually pay for themselves.

Limitation of Window Ventilation

The recognized limitation of ventilating by opening windows is mainly responsible for the development of the mechanical methods. In crowded establishments the windows cannot, under unfavorable weather conditions, be kept open sufficiently to accomplish the necessary air dilution without harmful and disagreeable drafts and chilling effects, and, moreover, there are not always winds or other agencies to force in the required amount at such times as open windows can be tolerated. In other words window ventilation is not to be depended upon nor can it be effectively controlled, and for this reason, it usually requires to be reinforced with positive and reliable agencies which will work when the natural agencies fail or are found insufficient.

This statement is not intended to imply that no ventilation can be secured through opening of windows, nor is it intended to support the old theory that the opening of windows destroys the effect of mechanical ventilation when such is operating. From a hygienic point of view a room cannot possibly have too many windows, nor can they be opened too often or too much when the external weather conditions permit this to be done without discomfort.

Opening of windows is often sufficient for ventilating small offices and private rooms where the occupant or occupants are at liberty to manipulate the windows for interchange of air to suit their own comfort, but in crowded establishments, where this is obviously impossible, open windows cannot be tolerated except under the most favorable weather conditions. It is for this reason that additional means must necessarily be provided.

In order to meet the situation intelligently, proper allowance should be made for the influence windows have on the



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indoor atmosphere; firstly, as to the unavoidable air leakage, which secures some ventilation even when the windows are closed; and, secondly, to the sterilizing effect which is obtained by the sunlight.

It is obviously unnecessary to provide any additional means for ventilating when the total window area is of such proportions that the accidental air leakage through the windows is sufficient for the necessary dilution of the air. It is equally obvious that rooms having inadequate windows for accomplishment of this dilution need additional means for the supplying of the requisite air when the windows cannot be opened without causing harmful drafts and discomforts to the occupants. Also that rooms having no windows or skylights whatsoever, particularly if such rooms happen to be interior rooms without any wall exposure, require to be specially well ventilated by mechanical means.

Fresh Air, Heat and Moisture

As to the quantities of fresh air, heat and moisture that require to be supplied, this depends, of course, upon the conditions encountered in each case. The standards hereinafter given are ample in their provisions to secure atmospheric conditions which will promote health and comfort with a reasonable and yet not undue margin of safety. These standards are prepared with the purpose of covering the requirements of all indoor conditions generally encountered, with recommendations for special provisions against contamination developed with manufacturing processes of special nature. They take into account that the occupants are confined for hours at a time and that but brief periods of the working-day are available for airing out and cooling the rooms.

Less air dilution than that given by the standards may answer for rooms and quarters occupied for only short periods and for rooms having liberal window areas of such exposures as to permit of penetration of direct rays of the sun to all parts of the interior. Working quarters, however, seldom come under this head. The stated requirements should, therefore, be considered the minimum, and while they can with advantage be increased, they should not at any time be decreased.

Rooms Without Windows

As to the underground and interior rooms, we all know that the atmosphere in such rooms is usually offensive unless well ventilated by mechanical means, and even then they are not as pleasant as rooms with windows. This is due partly to the absence of daylight and partly to lack of that accidental ventilation which in exposed rooms is produced by leakage through the windows and construction, and to make up for these deficiencies a much greater amount of fresh air is required than for rooms more propitiously situated.

For rooms and work shops in which undue heat, dust, fumes, vapors, odors or other impurities are created and released, special means should be provided for exhausting and collecting those harmful substances immediately after and where they are generated. If this is not done and such heat and substances are permitted to mingle with the air, unhealthful conditions will be produced which can not be entirely eliminated by air dilution, even if the same is increased far beyond that given in the standards.

Points of Special Importance

First. All air supplied for ventilating purposes should be free from dust, pathogenetic bacteria, and other contamination.

Second. A sufficient amount of air, properly tempered and distributed, requires to be supplied per person to satisfy both

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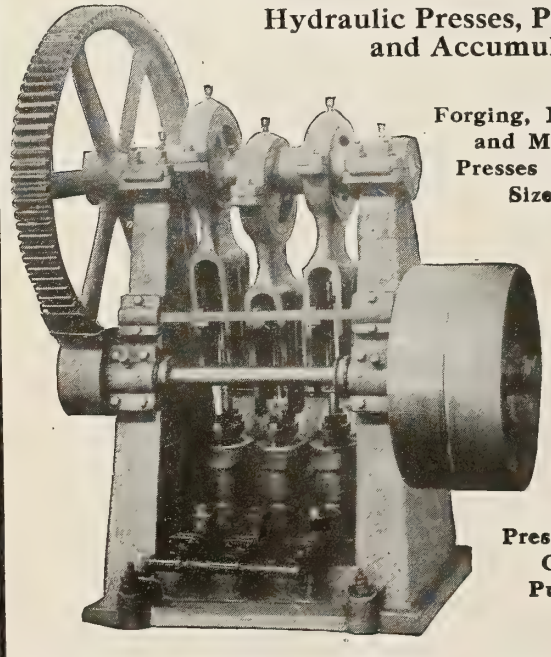
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the biological and physical functions of the human organism, and the governing factor determining the amount required must be that function which makes the greater demands.

Third. Ample allowance must be made for the combustion of gas and oil burnt for illumination and other purposes, as this vitiates the air and adds undesirable heat, and additional ventilation must be provided to fully offset these effects.

Fourth. The room temperature should be kept as constant and agreeable for the occupants as possible, overheating being as objectionable as underheating.

Fifth. Proper attention should be given to the subject of the humidity and the necessity of supplying additional moisture under extremely dry conditions and removing excessive moisture under reverse conditions. The latter is specially important when a high temperature is associated with a high relative humidity, which combination is injurious to the health besides causing discomfort.

Drafts Must Be Avoided

Sixth. Rapid air currents causing drafts must be avoided. While such currents increase the heat dissipation from the body and produce a certain comfort in hot weather, they are injurious to those who by necessity must remain in their path when air at a comparatively low temperature is introduced.

Seventh. Excessive heat, vapor and injurious substances arising from manufacturing processes or other causes require to be locally removed and thus prevented from being communicated to the room atmosphere, and all toilet, locker and other rooms of similar character require positive exhaust ventilation for the combined purpose of ventilating these rooms and preventing odors from them from spreading to the adjoining rooms.

Eighth. All radiators and coils representing heating surfaces require individual controlling devices either for hand operation or automatic, and all such heating surfaces must be so located and arranged that they will not cause discomfort to the occupants of the room.

Ninth. All hot surfaces which by nature of their use do not require to be exposed should be insulated by nonconducting material. This includes steam and other hot piping and metal surfaces of machinery, as well as walls and floors which have high temperatures and cause discomfort both by direct heating up of the room and by the effects from radiation or contact.

Design of Apparatus Important

Tenth. The matter of design is in every case as important and vital to a successful accomplishment as the air quantities supplied. Many ventilating and heating installations which are ample in capacity are nevertheless inadequate on account of faulty arrangements due either to lack of study and consideration as to important details or else to lack of understanding by the parties responsible for the design. The heating and ventilating science is often considered so simple that the design of the apparatus is entrusted either to parties having title or no previous experience, or to manufacturers who are mainly interested in finding a market for their special appliances and who consider their duty accomplished when the apparatus they furnish delivers the quantities of air and heat contracted for. Yet the fact is, that if the apparatus is to be successful in maintaining proper atmospheric conditions, too much attention cannot be given to detail of the arrangement of the apparatus and the distribution of the heat and the air introduced for ventilation.

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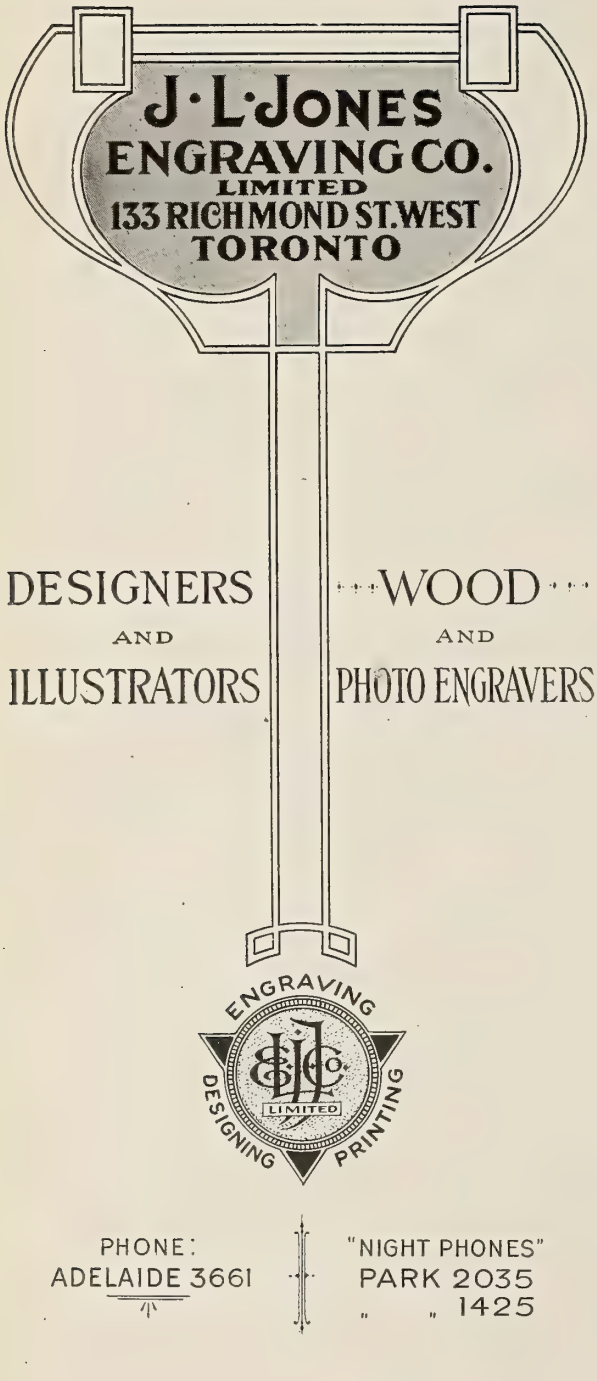
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One of the primary, elemental obligations resting on employers is to remove the fundamental disregard in the minds of many of the rights and duties of working people. Working people must be reached and made to feel a broad, deep confidence in employers. Then they will believe in the employers and act on their judgment.

By HON. IRVING W. DREW

(From "The Protectionist.")

The labor question is one of the most important matters that confronts us. It must be carefully examined, considered and met. Labor, manual labor, is absolutely essential to the development of the world in every department. It cannot be ignored. It is an essential factor. It must be fairly, properly, reasonably considered. It must be heard in conferences. When it is right, it must be listened to and its suggestions must be accepted.

Most persons wish to have our Government run in a wise and just way. If there are any who wish for unwise and unjust administration, they are morally and politically sick. They require treatment to improve their views on public questions. We must all be sensible and reasonable toward all persons. Nothing great and enduring is accomplished for the permanent benefit of mankind except by mutual and individual conference of the principals. Conference should never be made by commissions and agents when a conference of principals is possible. The only way to secure what one wants is to go to headquarters, to the person who has the final answer.

The same difficulty exists among the owners and controllers of money as exists with the owners and controllers of labor. The workman wants all that his labor can compel the manufacturer to pay, sometimes with little or no regard to the prosperity of the employer or to the public interest. The owners of money and the manufacturers want all their money can earn, without much thought, for the laborer who makes their money valuable by his labor. The manufacturer wants all the margin he can get from the sale of his goods, without special thought for his workmen and their families.

More Interest in Workmen

I think this condition of mind has changed quite a bit in the last few years. I am sure manufacturers are thinking much more about the prosperity of their employees than they did in years gone by. This interest in the workmen and women should be carried much further. There should be and there must be a purpose in the minds of all employers to see that every workman and workwoman in their employ is paid a good generous price for each day's work. They must see that they are comfortably provided for in their homes; that good schools are furnished for their children; that they have all the helpful accommodations and assistance that will uplift them into a wiser and safer line of thought and enlarge and broaden their views of life and its requirements of them and of all mankind. The workman should not feel that he is a tool to be used for a time and then to be thrown away. There is in each of us a manhood or womanhood that under some circumstances can and will assert itself. That manhood and womanhood should be taught that it is an essential and vital part of this great system called the world; that much of the benefits and many of the duties are coming to and resting upon them; that they must suffer when trouble comes and they may rejoice when peace and plenty prevail; that they are responsible owners in this most wonderful system; that they are responsible for its success



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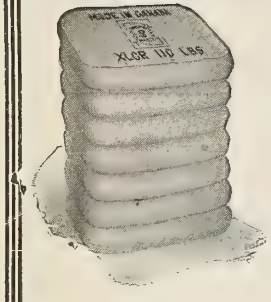
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and that if trouble comes they share in the responsibility for the misfortune.

The working men and working women should be taught to save. Very many of them do save now, but those who do not save should be taught to save. If each one would put away ten per cent. of each week's earnings in a savings bank, where it would be safe and earn them four per cent., in a little time they would all become contributors to the funds loaned by the savings banks to help on the money side of the great investments that bring them an honest day's work each day at reasonable prices. They would come to realize that they are interested on both sides of the manufacturing work. They furnish the labor that transforms the raw material into useful articles for daily use, and their money, deposited in the savings bank, is used by the employer to buy the raw material and meet the other obligations that he must meet to keep the business running.

These workmen and workwomen would readily come to understand that they cannot take all the profits; because if they did the business could not be carried on. The man or owner who hires them must have good pay from the business or he will be obliged to close it down. The man who hires them is the last person to be paid out of the income. The mill must be equipped and kept in order. The raw material must be paid for, the labor must be paid for. The last person served from the profits is the manufacturer. If any one suffers, he is the one who is sure to suffer; because all others may be paid and he may be left without a dollar. The laboring people will all understand this when it is given to them by those who are truly interested in them.

Selfish, Vicious Advisers

Owing to the infirmities that afflict humanity, many of the advisers of the workmen and workwomen who have succeeded in being promoted to positions for which they are wholly unfit, do not properly understand the true relation that the working people bear to the business of the country; or, if they do understand, absolutely abandon the true, just view and talk and teach unjust and dangerous views to the laboring people. There are some good, wise men to whom the working men and women would listen if they were left alone, unhindered by the selfish, vicious advisers, who do not know, or who do know and do not advise according to their knowledge.

Suppose a representative said to the laboring class of this country: "Here is a man, without money, but who has the ability to run a cotton mill employing 20,000 men and women. He can hire the money of a savings bank in which your money is deposited to build a mill and buy the raw material and all other things needful for the purpose of running the mill. He must have workmen and women to run the mill. He will hire you and give you permanent work at a reasonable price, but you must understand that he must have some compensation left after paying the interest on the money hired to build the mill, after paying for raw material, after paying for all repairs and expenses needed to keep the mill in service. He is willing to pay you for your work. He expects you to work earnestly and steadily. He will not negotiate with any hired representatives for you. He says if there is any trouble he wishes to work with you to straighten things out and let you know you are receiving fair and reasonable compensation for your wages. If hard times come, he may have to give you less than the price now fixed. Will you work for him under these conditions?"

Most of our working men and women would say, "Yes." But many of the labor advisers would urge them not to work.

These are some of the conditions that reasonable men and women of this country and all countries must work diligently to eliminate.

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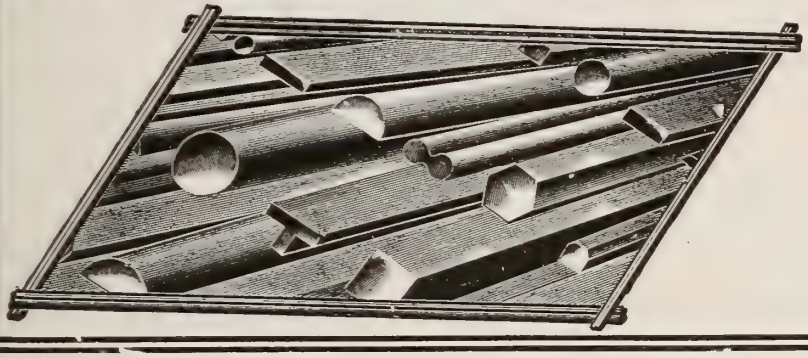
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THE PUBLIC AND DEMOBILIZATION

The first correct step in the direction of demobilization will be taken when Canadian citizens in general obtain a clear and sympathetic understanding of the difficulties confronting the soldier during the first critical months subsequent to his discharge. Without this understanding, the best and most wisely administered Government policy cannot but fail in the highest results.

By LIEUT.-COL. (TROOPER) MULLOY

What is there about demobilization which makes it a problem of supreme national importance? That it is of such importance we know. not only form the conference on this subject between the Dominion and Provincial Governments, but in the note of anxiety, almost of apprehension, to be detected in the speeches and writings of leading men of all the belligerent nations when touching the question of demobilization.

The task of demobilizing a comparatively large regular army in such a manner that at the conclusion of the process approximately the entire strength will have been re-absorbed into the industrial life of the nation has never yet been successfully accomplished.

What is there in military training which in any way unfits a man for civilian occupation? We take him "from the city and the plow" and two or three years later we return the same man to the same place. But is he the same man, and if not, what is the subtle change that has taken place? For answer let us contrast military life, to which the volunteer was introduced three years ago, with the civilian life which he had just left.

Relieved of Responsibility

In civil life the young man had certain fundamental responsibilities common to ninety-five per cent. of his kind, viz., the responsibilities of providing for himself and weaker ones who might be dependent upon him, food, clothing and shelter, including the decent home perquisites of his station in life. The moment he dons the uniform he is relieved of all such responsibility, receiving food, clothing, shelter, medical attention, funeral expenses, if necessary, and support for those dependent upon him. But these responsibilities form the incentive for nearly all of the world's activity. In fact, it is a safe assertion that in normal peace times the desire for, or the necessity of providing, the above perquisites drives nine-tenths of the world's population to its daily occupation. Not only does it drive them to work, but it keeps them there until quitting time, whether the day be eight hours long or eighteen, and this has been true since man was first organized into society.

Quite as important as a detrimental influence of military training on the man who must again enter the labor market is what may be termed the lost or restricted initiative. As a private citizen a man would be counted remiss if he did not at all times exercise his undoubted right to use his judgment and power of decision in all matters pertaining exclusively to his personal welfare. In fact, it is only by so doing that he develops his powers of judgment, decision and action. Whatever his station there is always in his daily life a multitude of circumstances, small and great, which call forth, exercise and, by exercising, develop his power of wise decision.

In the army life, on the contrary, such individual liberty is impossible, for it would quickly convert the best army into an armed mob.

The next feature of the old life which I wish to contrast with the new life of the recruit is that of self interest or

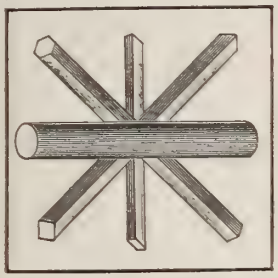


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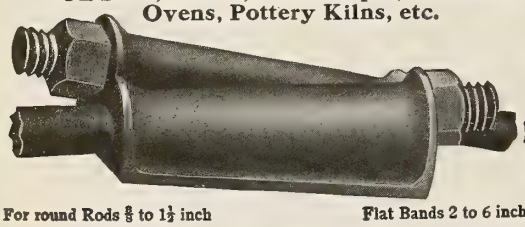


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ambition—the latter being but an accentuation of the former. In every human action there is the self referring element, i.e.,—the prompting to express one's self meanly, well or nobly, and all human action is based on self interest, more or less enlightened. The young civilian is free to choose his occupation according to his personal inclination. If he discovers later that it is not to his interest, he is free to abandon it and choose another.

Immediately he joins the army, however, self interest, except in the highest interpretation, ceases to be a controlling factor in his daily life. If ordered to drill in the mud, he drills. If ordered to march all day in a sweltering sun or a numbing sleet, he does so.

In other words, self interest is not only made secondary, but disciplined into complete abeyance.

Do not the above changes in his method of thinking together constitute a heavy handicap to the returned soldier? Reason warrants the conclusion that they do and is supported by ample evidence from history and experience. Accepting it as correct, we see at once that in preparing for the demobilization of four hundred thousand soldiers, the Canadian people have something to do in addition to making the necessary economic or industrial adjustment. Whatever that 'something' may be, I am convinced that the first correct step in its direction will be taken when Canadian citizens in general—relatives of soldiers and employers of labor in particular—obtain a clear and sympathetic understanding of the difficulties confronting the soldier during the first critical months subsequent to his discharge. Without this understanding on the part of the people, the best and most wisely administered government policy, as I previously intimated, cannot but fail in the highest results.

Government Employment Bureaus

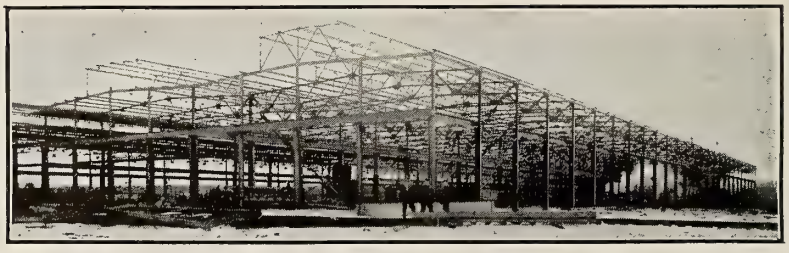
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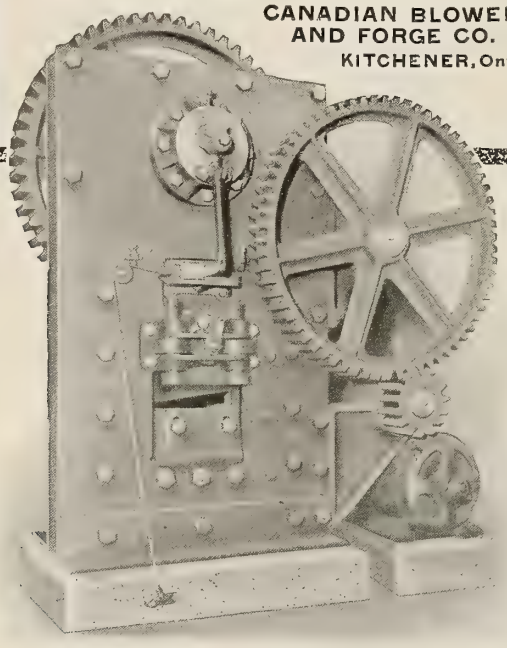
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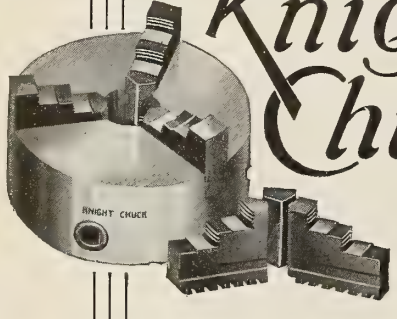
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FAILURE OF GERMAN INSURANCE

Instead of substantially improving the economic condition of German wage-earners, the benefits provided through social insurance were never adequate to meet more than the requirements of a minimum standard of life; comparative statistics of physical well-being prove conclusively the prevalence of a much larger amount of constitutional diseases.

By FREDERICK L. HOFFMAN. LL.D.
(From "Safety Engineering,"

Instead of effectively suppressing social democracy throughout the German Empire, the social insurance institutions merely served the purpose of furthering the spread and more general acceptance of radical socialistic doctrines, sustained by the feudalism and paternalism of the German Government. When social insurance came into existence the Socialistic party vote was approximately 500,000, whereas at the outbreak of the world war the voting strength of the Socialists had reached 4,500,000.

Instead of lessening the prevailing amount of social unrest, the social insurance institutions merely increased the demand for additional benefits out of all proportion to the intrinsic value of the financial contributions made by employers and employees.

Instead of substantially improving the economic condition of German wage-earners, the benefits provided through social insurance were never adequate to meet more than the requirements of a minimum standard of life. In 1915 the average invalidity annuity was less than $50 per annum, about the same amount was paid for sickness annuity, about $40 per annum for old age and about $20 per annum for widows and orphans.

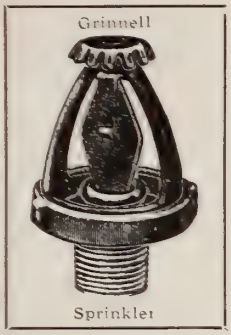
Contrary to wrongful assertions concerning the physical progress of the German people under social insurance, the comparative statistics of physical well-being prove conclusively the prevalence of a much larger amount of constitutional diseases. lack of disease resistance, want of normal physical development, etc.

In Advance of Germany

In the direction of sanitary reform the corresponding progress throughout the United States was measurably in advance of German achievement. The German death rate under social insurance has not been diminished proportionately to the decrease secured in this country in response to a far-sighted and more liberal public policy. The alleged interest of social insurance institutions in public health activities was practically limited to the treatment and care of tuberculous wage-earners, entitled to relief under the invalidity insurance system, but for this most afflicted element the average duration of treatment was only 90 days, or quite insufficient for the purpose, in contrast to an average duration of twice that length of time in such well-managed institutions as the Municipal Sanatorium of Chicago.

Since the outbreak of the war tuberculosis has rapidly increased throughout Germany and the institutions established for tuberculous wage-earners have been largely utilized for war purposes. The amounts heretofore provided for tuberculous wage-earners under social insurance have been reduced by more than one-half, while the amounts required have been diverted to war charities.

The condition of the medical profession throughout Germany has not been materially improved, but quite to the contrary the ethical standards have been perceptibly lowered, attaining in some communities to the proportions of a positive public scandal. The better element has been discouraged by the opportunities extended to the more unscrupulous to



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encourage malingering and fraud and widespread imposition upon the funds. Instead of harmonious relations prevailing between the medical associations and the sickness insurance funds, quite to the contrary there has been continuous warfare, best illustrated by the frequency of so-called "doctors' strikes."

The sickness rate among German wage-earners is not disclosed, but remains at a figure far above any corresponding conditions of ill-health disclosed by impartial investigations in this country. In many of the funds half of the wage-earners will claim sickness and medical benefits throughout the year.

In consequence, from the industrial changes resulting from the war, a large number of women, children and aged persons have been admitted to membership in the sickness and invalidity funds under conditions opposed to conservative management. In consequence, the future demands upon the funds for sick relief and invalidity must very considerably increase.

Not only has the Government been reckless or indifferent in the general administration of the funds, but there has been the utmost tolerance in the making of expenditures for war charity purposes, out of all proportion to the financial resources of the funds. During 1915 alone over 20,000,000 marks was expended in this manner, largely in the form of money grants to dependents of soldiers killed in the war, or for Red Cross purposes, etc.

Government Looted Fund

If reckless in the direction indicated, the Government virtually looted the accumulated funds, especially of the invalidity insurance institutions, by insisting upon the compulsory investment in war loans. The social insurance institutions subscribed 1,500,000 marks to the first seven war loans, and at the present time the invalidity insurance institutions have over half of their investments in war obligations.

In the industrial accident branch of social insurance, the Government has approved very substantial reductions in the assessments as a matter of war necessity, regardless of an increase in accident frequency on account of the employment of women, children and aged persons without previous factory experience. Between 1914 and 1915 there was a decrease in the expenditures for accident prevention to the amount of over 600,000 marks, and nearly a million marks less were expended in connection with accident investigations, supervision, etc. In marked contrast to expenditures in 1915 of less than two million marks for accident prevention, the expenditures for the investigation of accident claims, accident causation, etc., reached not far from four and a half million marks. The evidence that German industrial accident prevention under social insurance has not been anywhere near as effective as the corresponding voluntary efforts in this country is brought out by the statement that while in 1903 the fatal accident rate in German industry was 0.74 per thousand, it was 0.73 in 1914 and 0.85 in 1915.

It is a foregone conclusion that German wages must suffer a very substantial decline in consequence of the war and the readjustment of international relations, more or less decidedly burdensome to the German people. Since the whole social insurance system rests upon the compulsory deduction from wages on the one hand and the compulsory contributions by employers on the other, the inference would seem justified that if the products of German industry are in the future to meet international competition, the burdens of social insurance will have to be materially reduced.

After all, the most lamentable consequence of social insurance in Germany has been the measurable lowering of the social and individual morality of the German people. The system in every direction has fostered dishonesty, deception and dissimulation.

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THE KING OF THE WESTERN FARMERS

Here is the story of a western farmer who has made big money. When so much is being heard about the "rich manufacturer" and the "poor farmer," it is illuminating to find that there are some farmers who have more money than a good many manufacturers. In fact, were a thorough investigation made, a lot of them would doubtless be unearthed.

By W. McD. TAIT

(Reproduced from "Toronto Star Weekly.")

Twenty years ago a "cow-puncher," now a wealthy retired rancher, riding the range between the Bow River and the Old Man River in Southern Alberta, was asked by a tenderfoot: "Will this land ever grow grain?" The answer he got was, "Some fellow escaped from a lunatic asylum might attempt to farm here, but no man in his right mind would think of it,"

Ten years ago the optimists of Southern Alberta started trekking east from what was then the only railway line that ran from Calgary south. The farming possibilities of those same plains, ridiculed by the cow-puncher, stretching east from the foothills to touch the first rocky buttes some twenty miles away, were soon realized and settlement preceded the railways that now do duty for this district.

Among the first to acquire holdings on this choice bit of prairie was Chas. Sherwood Noble, an American with a good stock of enthusiasm, perseverance, and resourcefulness and not much else. Selling C.P.R. land kept him afloat during the early days, but it was a hard pull. He chewed off a bite that would have choked most men, but judicious investment, ceaseless effort, and far-sighted business policy have transformed the homestead of humble beginnings to an enterprise of magnitude crowned with success; one of Alberta's object lessons to the skeptical.

Many men have been set forth as occupying the first place in the Western agricultural world. Some of these claims are just, because in the special branch of agriculture which each has taken up he has perhaps got to the top. But if all and sundry of the leaders in the production of grain were to line up for examination, a process of elimination would leave Charles Sherwood Noble king over all.

This man was born near State Centre, Iowa, in 1873, and was the second of a family of six boys. His mother having died when he was eight years old, he was sent to live on a typical Iowa farm where corn, milk, and pork were produced in abundance. Here it was, no doubt, that he imbibed his love for farming. Upon attaining his majority, he filed on a homestead near Knox, North Dakota. In spite of hardships and an almost entire lack of means, he soon showed his more experienced neighbors that they had something to learn about farming.

Moved to Alberta

By the time he had made his five-year profit he had accumulated some $5,000 worth of property. With this he moved to Claresholm, Alberta, in 1903, where he again homesteaded. Those were prosperous days for the farmer, and Mr. Noble was foremost in taking advantage of every opportunity. As a result he found himself by the year 1909 the owner of two large farms aggregating eleven sections, 7,040 acres, in one block near the present town of Nobleford. Today he is the virtual owner of Grand View and Prairie View farms at Nobleford, the Marquis farm at Barons, Riverside at Carmangay, and the large tract known as the Cameron Ranch east of Barons. These have a total area of 30,000 acres, nearly all of which is under cultivation, or in some course of preparation.

There were nine square miles of crop on these farms in

"CO-OPERATE" MR. MANUFACTURER

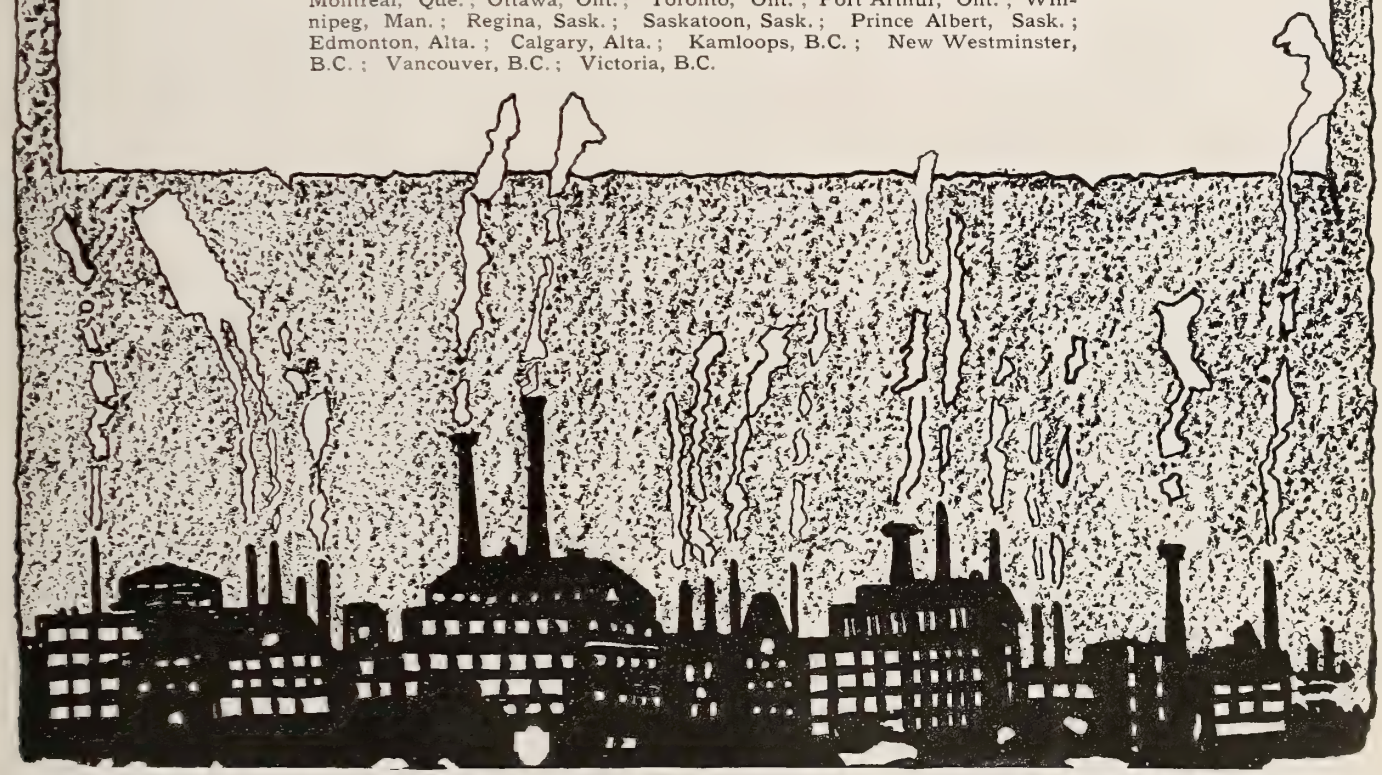
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We are working in closest co-operation with the Dominion Employment Service and the Department of Soldiers' Civil Re-establishment.

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TRADES AND LABOUR BRANCH
DEPARTMENT OF PUBLIC WORKS

Our Motto—"The Right Man in the Right Job."

1916, and on one of them, a block of 1,000 acres of wheat yielded 54,395 bushels, most of which sold for $2 a bushel. In this year Mr. Noble held the world's record for wheat yield on a large tract. His wheat crop alone totalled almost 250,000 bushels, valued at nearly half a million dollars.

While steam and gasoline driven machinery is used wherever practicable, there are 250 work horses on the farm all the year, and in the busy season about 200 men. The salary and wage bill of the farm runs considerably over $50,000 a year, and the men working steadily for Mr. Noble are paid a share of the profits for the year—a plan modelled after that in use in Ford plants, but something never heard of in farm management before.

While Mr. Noble is a man of exceptionable ability and has such qualities as energy and foresight in a measure not easily attained by others, still there are many things in his practices which most farmers could copy to advantage. Perhaps his most distinguishing characteristic and the real secret of his success is his willingness to "pay the price." While others are in the habit of saying, "I guess it's all right, but I can't afford the price," Mr. Noble says, "I know it will pay and I'm going to do it." He has paid the highest wages in Alberta as well as a bonus to those who stay through the season. He cleans his seed four times before putting it into the drill. Poor horses or worn out tools are never allowed to stand in the way of good work. In his summer fallowing he is particularly thorough. He begins immediately after seeding and follows incessantly with all manner of cultivation till all danger of weed propagation is past and the soil sufficiently supplied with moisture to ensure a good crop the following year.

In Demand as Lecturer

The late Earl Grey, former Governor-General of Canada, was greatly interested in Mr. Noble's farming operations. When the report of the record-breaking yield of 1916 was given out, the Earl, then residing in England, cabled for full particulars and a sworn affidavit of the result. These were sent him and are now filed as immigration propaganda to be used by the British Government when needed.

A man who habitually meets with such unqualified success on so large a scale, even when others are failing, finds himself in demand as an educator. Farmers in Western Canada are always anxious to learn "how Noble does it." As a consequence, in the spring of 1915, Mr. Noble suddenly blossomed out as a lecturer at farmers' meetings, and here again his success has been unqualified. It was apparent from the beginning that he had one very decided advantage over a large class of agricultural lecturers. Where they talked from theories or from results on government maintained test plots, Noble talked directly from actual field operations carried on solely as a business enterprise and without other capital than he himself has been able to get out of the soil he works. As a result of his replies to enquiries are never questioned; they are authoritative.

Why are there not more Noble farms in Canada? one involuntarily asks. Because, as this expert agriculturist says himself, farming in this country is regarded as an occupation at which to make a living; not as a business or an exact science. In so far as it is true that "all big businesses in the world have been built up on borrowed capital and on big borrowings," what seems to be needed most of all at this moment are men of the Noble type of courage and intelligence, who can put farming on an industrial basis and command for agricultural securities the same sort of market which railroads and other industrial enterprises are able to secure. The Noble Foundation, Limited, has demonstrated, peradventure, that small grain farming can be reduced to an exact science, and in this C. S. Noble has rendered a distinct service.

Buyers' Guide to Canadian Manufactures

List of Articles which will Enable the Purchaser to Know the Manufacturers of Made-in-Canada Goods. For Rates of Insertion in this Department write to the Advertising Manager of INDUSTRIAL CANADA, C.M.A., Toronto, Ont.

ABATTOIR MACHINERY and SPPPLIES
*The John Whitfield Company, Toronto, Ont.
ABRASIVES
*Coralox, Limited, Hamilton, Ont.
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
*Dominion Abrasive Wheel Co., New Toronto, Ont.
ACCOUNT BOOKS
*The Brown Bros., Ltd., Toronto.
ACETYLENE GAS
*The Prest-O-Lite Company.
ACETYLENE GAS BURNERS
Economiq Acetylene Burner Co., Toronto.
*The Prest-O-Lite Company.
ACIDS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal.
ADVERTISING NOVELTIES
Lawson & Jones, Ltd., London, Ont.
AERATED BEVERAGES
Charles Gurd & Co., Ltd., Montreal, Que.
J. J. McLaughlin, Ltd., Toronto.
AIR COMPRESSORS
*Canadian Ingersoll-Rand Co., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ALCOHOL
*Canadian Industrial Alcohol Company, Limited, Montreal, Que.
*Hiram Walker & Sons, Limited, Walkerville, Ont.
ALUMINUM
*Northern Aluminum Co., Ltd., 1805 Traders Bank, Toronto.
ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
AMMONIA
Canadian Ammonia Co., Ltd., Toronto.
ANGLE BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
ARSENIC
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ATTACHMENT PLUGS
*Crouse-Hinds Co., Ltd., Toronto.
AUTOGRAPHIC REGISTERS
*Autographic Register Co., Ltd., Montreal.
AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.
AUTOMATIC SCREW MACHINE PRODUCTS
*United Brass & Lead, Ltd., Toronto
AUTOMOBILE ACCESSORIES
*McKinnon Industries Limited, St. Catharines, Ont.
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton, Ont.
AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
*United Brass & Lead, Ltd., Toronto
AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton, Ont.
AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
BABBITT METAL
Alonzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.
BAGS
*Scythes & Co., Ltd., Toronto.
BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.
BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.
BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.
BAND RESAWS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.
BANK AND OFFICE RAILINGS AND CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
BARS, iron
London Rolling Mill Co., Limited, London, Ont.
BARS, steel
London Rolling Mill Co., Limited, London, Ont.
BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.
BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.
BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
BATTERIES, Flashlight
The Canadian National Carbon Co., Ltd., Toronto.
BATTERIES, Storage
The Canadian National Carbon Co., Ltd., Toronto.
BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BEARINGS, pillow block and upright
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.
BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.
BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.
BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.
BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.
BENT GOODS
The Crown Lumber Co., Woodstock, Ont.
BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.
BISCUITS
The Montreal Biscuit Co., Montreal, Que.
BLACK SHEETS
*A. C. Leslie & Co., Montreal.
BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton, Ont.
BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.
BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.
BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor,
BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited, Montreal.
BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.
BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.
BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.
BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BOILER STANDS
Anthes Foundry Ltd., Toronto.
BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The National Acme Mfg Co., Montreal., Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.
*United Brass & Lead, Ltd., Toronto
BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.
BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.
BOOKLETS
R. G. McLean, Toronto.
BOOKS, blank
*The Brown Bros., Ltd., Toronto.
BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.
BOTTLES, Hot Water, Brass, Nickel Plated.
*Wentworth Mfg. Co., Hamilton.
BOXES
*Crouse-Hinds Co., Ltd., Toronto.
BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.
BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.
BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.
BOXBOARDS, for making paper boxes
*Canada Boxboard Co., Limited, Montreal, Que.
BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited, Montreal.

*For Display Advertisement see Index, Page 41

BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRAKE SHOE BACKS
*The John Whitfield Company, Toronto, Ont.
BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS GOODS
*Penberthy Injector Co., Ltd., Windsor.
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead Ltd., Toronto.
*Wentworth Mfg. Co., Hamilton.
BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS RODS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRASS SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*United Brass & Lead, Ltd., Toronto
BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.
BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.
BRIDGES, Railway and Highway
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRONZE SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRONZE TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.
BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.
BUCKET TANKS
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
BUCKLES. harness and trunk
*McKinnon Industries Limited, St. Catharines, Ont.
BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St Johns, Que.
Toronto.
BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Barrett Co., Ltd., Toronto and Montreal.
BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal. Que.
CABLE ACCESSORIES
*Crouse-Hinds Co., Ltd., Toronto.
CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd.. Hamilton, Ont.
CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.
CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.
CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.
CALENDARS, ADVERTISING NOVELTIES, etc.
Lawson & Jones, Limited, London, Ont.
CAMERAS
Canadian Kodak Co., Limited, Toronto.
CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford. Ont.
CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.
CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can: Co., Ltd., Montreal.
CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.
CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.
CANVAS
*Scythes & Co., Ltd., Toronto.
CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.
CAPS FOR HUBS
*McKinnon Industries Limited, St. Catharines, Ont.
CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.
CARBONS, Electric
Canadian National Carbon Co., Ltd., Toronto.
CARBONS (headlight)
*Crouse-Hinds Co., Ltd., Toronto.
CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.
CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited,
CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.
CARRIAGE CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.
CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.
CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier
CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.
CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.
CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
CARTONS, lithographed
Harris Lithographing Company, Limited, Toronto.
CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
'Tallman Brass & Metal Co., Hamilton, Ont.
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, grey iron
*Canadian Rumely Co., Limited, Toronto, Ont.
*Crouse-Hinds Co., Ltd., Toronto.
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound. Ont.
CASTINGS, malleable iron
*Crouse-Hinds Co., Ltd., Toronto.
*Galt Malleable Iron Co., Ltd., Galt. Ont.
CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.
*Wm. Kennedy & Sons, Ltd., Owen Sound.
CATALOGUE MAKERS
Grip, Ltd., Toronto.
CATALOGUE COVERS, by new lithographing process
Harris Lithographing Company, Limited, Toronto.
CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor,
CELLBOARD
Adams Cellboard Co., Toronto,
CEMENT GUNS
Steel and Radiation, Ltd., Toronto.
CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.
CENTRIFUGAL PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.
CHAINS, sling
*The John Whitfield Company, Toronto, Ont.
CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.
CHAIRS FOR AUTOMOBILES, camp, boat
*McKinnon Industries Limited, St. Catharines, Ont.
CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.
CHECKS, swing checks, etc
*Mueller Mfg. Co., Ltd., Sarnia.
CHEMICALS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.
CHEMISTS, INDUSTRIAL
*Milton Hersey Co., Montreal.
CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.
CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.
CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland. Ont.
CLOCKS, TIME
*International Business Machines, Limited, Toronto.
CLOCKS, WATCHMEN'S
*The Bennett & Wright Co., Ltd., Toronto, Ont.
CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.
CLOTHING
John W. Peck & Co., Ltd., Montreal. Que.
CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.
CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.
CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.
CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.
CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.
COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

For Display Advertisement see Index, Page 41

COBALT OXIDE
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.
COBALT METAL
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
COFFEE
S. H. Ewing & Sons, Montreal
COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited Hamilton, Ont.
COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto
COLLAR BUTTONS
The Arlington Co. of Canada, Ltd., Toronto.
COLLARS
The Standard Shirt Co., Limited, Montreal, Que.
COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.
COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
COLORS
Brandram-Henderson, Limited, Montreal, Que.
A. Ramsay & Son Co., Montreal
COMBS, fine dressing and nane
The Arlington Co. of Canada, Ltd., Toronto.
COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.
CONCRETE COATINGS, PAINTS, ETC.
*Beveridge Paper Co., Ltd., Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
CONDUITS FOR INTERIOR WIRING
*Conduits Company Ltd. Toronto.
CONDULET BOX FITTINGS
*Crouse-Hinds Co., Ltd., Toronto.
CONDULETS (Marine)
*Crouse-Hinds Co., Ltd., Toronto.
CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal.
CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.
CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland.
*Canadian Allis-Chalmers, Limited, Toronto.
CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Consolidated Mining & Smelting Co. of Canada, Limited, Toronto.
COPPER, SHEETS, PLATES, BARS, RODS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.
COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CORKS
S. H. Ewing & Sons, Montreal, Que.
CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.

CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
Corrugated Paper Box Co., Ltd., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
CORUNDUM, artificial
*Coralox, Limited, Hamilton, Ont.
CORSETS
Dominion Corset Co., Quebec, Que.
COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.
COTTONADES
Hamilton Cotton Co., Hamilton, Ont.
COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.
COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
CRANES
*Northern Crane Works, Walkerville, Ont.
CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.
*The John Whitfield Company, Toronto, Ont.
CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.
CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
CREOSOTED MATERIALS
*The Barrett Co., Ltd., Toronto and Montreal.
CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.
CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.
CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
CUPS, presentation
Standard Silver Co., Toronto.
CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.
CURLED HAIR
*Delany and Pettit, Ltd., Toronto.
CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.
CUTLERY
Standard Silver Co., Toronto.
CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.
DASHES, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.
DECALCOMANIA TRANSFERS
Canada Decalcomania Co., Limited, Toronto.
DECK PLUGS (electric marine)
*Crouse-Hinds Co., Ltd., Toronto.
DENIMS
Hamilton Cotton Co., Hamilton.
DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
DESIGNERS
Ontario Engraving Co., Hamilton, Ont.
DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.
DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
DESSICATED VEGETABLES
Grahams Limited, Belleville.
DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.
DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
*John Whitfield Co., Toronto.
DISINFECTING APPARATUS
Spramotor Co., London, Ont.

DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.
DOUBLETREES
*McKinnon Industries Limited, St. Catharines, Ont.
DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.
DRESSING, belt.
Sadler & Haworth, Montreal, Que.
DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.
DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILL PRESSES
*Canada Machinery Corporation, Limited, Galt, Ont.
DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.
DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.
DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.
DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
DROP HAMMERS
*Canada Machinery Corporation, Limited, Galt, Ont.
DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.
DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.
DYNAMITE
Canadian Explosives, Limited, Montreal, Que.
DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.
EIDERDOWN
Galt Knitting Co., Ltd., Galt.
ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.
ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.
ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELECTRIC LAMPS
Packard Electric Co., Ltd., Toronto.
ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.
ELECTRIC BRANDING TOOLS
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
ELECTRIC RAILWAY EQUIPMENT
*Crouse-Hinds Co., Ltd., Toronto.
ELECTRODES, Carbon
Canadian National Carbon Co., Ltd., Toronto.
ELECTROPLATING
*United Brass & Lead, Ltd., Toronto
Central Press Agency, Toronto.

ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
ELECTRIC SOLDERING IRON
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.
ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
ELEVATORS
*Jenckes Machine Co., Sherbrooke,
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
*The A. B. Ormsby Co., Limited, Toronto.
ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.
ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.
ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, gas and gasoline
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.
ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.
ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, Marine, Gasoline and Kerosine
Bruce, Stewart & Co., Ltd., Charlottetown, P.E.I.
ENGINES, oil, gasoline and kerosene
*Golson Manufacturing Co., Ltd., Guelph.
ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.

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ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.

ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.

ENGRAVERS
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton.

ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.

ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa.

ENGRAVING
*J. L. Jones Engraving Company Toronto.

ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa Limited, Ottawa, Ont.

ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.

EVAPORATED APPLES
Grahams Limited, Belleville.

ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal Que.

EVENERS, for 2, 3, 4, 6 and 8 horses
*McKinnon Industries Limited, St. Catharines, Ont.

EXCELSIOR
*Delany & Pettit, Ltd., Toronto.

EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.

EXPLOSIVES, high
Canadian Explosives Ltd., Montreal.

FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.

FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.

FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

FASTENERS, belt
*Sadler & Haworth, Montreal, Que.

FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited Montreal.

FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.

FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.

FENCING, wire
C. H. Johnson & Sons, Limited. Montreal, Que.

FENDERS, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.

FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull Que.

FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.

FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope.

FILING CABINETS
*Office Specialty Co., Newmarket

FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILTER PAPERS
*Beveridge Paper Co., Limited Montreal.

FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.

FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont

FIRE BRICK
Dominion Fire Brick and Clay Products, Ltd., Moose Jaw

FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.

FIRE BRICK AND CLAY
The Dominion Fire Brick and Clay Products, Ltd., Moose Jaw, Sask.

FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.

FIRECLAY
*Jas. W. Foley & Co., St. John, N.B.

FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.

FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.

FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.

FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.

FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited, Brantford, Ont.

FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.

FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Bennett & Wright Co., Ltd., Toronto, Ont.

FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.

FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.

FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.

FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.

FITTINGS, steam
Warden King, Ltd., Montreal, Que.

FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.

FLAGS
*Scythes & Co., Limited, Toronto.

FLANGES, for wheels
*McKinnon Industries Limited, St. Catharines, Ont.

FLOODLIGHTS (electric)
*Crouse-Hinds Co., Ltd., Toronto.

FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.

FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.

FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.

FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.

FORGINGS
Canada Forge Co., Ltd., Welland.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
*The John Whitfield Company, Toronto, Ont.

FORGINGS, drop
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.

FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.

FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.

FOUNTAINS, drinking
*Mueller Mfg. Co., Ltd., Sarnia.

FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.

FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

FUEL
Standard Fuel Co., Toronto.

FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.

FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.

FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.

FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.

FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.

FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.

FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.

FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont.

FUSE BOXES
*Crouse-Hinds Co., Ltd., Toronto.

FUSE PLUGS AND FUSES, refillable
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.

FUSES
*Economy Fuse and Mfg. Co., Montreal.

GALVANIZED IRON
*A. C. Leslie & Co., Montreal.

GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
*The A. B. Ormsby Co., Limited, Toronto.

GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
*McKinnon Industries Limited, St. Catharines, Ont.

GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

GASOLINE
*The Imperial Oil Co., Limited, Toronto.

GAUGES
*Brown Engineering Corporation, Toronto.
*John Whitfield Co., Toronto.

GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
*The John Whitfield Company, Toronto, Ont.

GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.

GELATINE
Canada Gelatine Co., Ltd., Brantford.

GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.

GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.

GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.

GILDING METAL.
*Dominion Copper Products Company, Limited, Montreal.

GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.

GLASSWARE, cut
Roden Bros., Ltd., Toronto.

GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.

GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.

GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.

GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.

GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.

GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.

GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.

GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.

GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.

GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited. New Toronto.

GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.

GUARDS (Condulet)
*Crouse-Hinds Co., Ltd., Toronto.

GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited. Stratford, Ont.

GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.

GUY RODS
*Crouse-Hinds Co., Ltd., Toronto.

GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.

GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

*For Display Advertisement see Index, Page 41

HACK SAW BLADES and FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W. Fearman Co., Ltd., Hamilton, Ont.
HAMES, steel and iron
*McKinnon Industries Limited, St. Catharines, Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
*Beveridge Paper Co., Ltd., Montreal.
HARNESS
Lamontagne Ltd., Montreal, Que.
HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HARNESS HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEADLIGHT (electric)
*Crouse-Hinds Co., Ltd., Toronto.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C A. Dunham Co., Ltd., Toronto.
HEMLOCK, union and oak sole
Breithaupt Leather Co., Ltd., Kitchener, Ont.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

HOOKS, for logging chains
*McKinnon Industries Limited, St. Catharines, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HUB CAPS
*McKinnon Industries Limited, St. Catharines, Ont.
HUBS, for Ford cars
*McKinnon Industries Limited, St. Catharines, Ont.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited, Toronto.
ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal, Que.
INCUBATORS & BROODERS
Lee Mfg. Co., Ltd., Pembroke, Ont
INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited Windsor, Ont.
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited Montreal.
INSULATORS
*Crouse-Hinds Co., Ltd., Toronto.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co. of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St. Johns, Que.
IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth, N.S.
IRON AND STEEL BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRON, LEAD AND PUTTY
A R. Whittall, Montreal, Que.
IRON PUMPS
*Medicine Hat Pump & Brass Mfg. Co., Medicine Hat, Alta.
JACKS
*Globe Engineering Co., Limited, Hamilton, Ont.
JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.

JOINTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
*Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
*The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
*The Peter Hay Knife Co., Limited, Galt, Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Company, Limited, Toronto.
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.
LAMP GLOBES
*Crouse-Hinds Co., Ltd., Toronto.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LATHES
*Canada Machinery Corporation, Limited, Galt, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD
*Consolidated Mining & Smelting Co. of Canada, Limited, Toronto.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.

LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
*United Brass & Lead, Ltd., Toronto
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER DASHES AND FENDERS
*McKinnon Industries Limited, St. Catharines, Ont.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock, union and oak sole
The Breithaupt Leather Co., Ltd., Kitchener, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.
King Brothers Company, Limited, Whitby, Ont.
LIGHTS (marine, side and port)
*Crouse-Hinds Co., Ltd., Toronto.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Company, Limited, Toronto.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
*United Brass & Lead, Ltd., Toronto
LOGGING CHAIN HOOKS
*McKinnon Industries Limited, St. Catharines, Ont.
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.

*For Display Advertisement see Index, Page 41

LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
Henry Disston and Sons, Toronto
MACHINE TOOLS
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special and repairs
*Canadian Rumely Co., Limited, Toronto, Ont.
*The John Whitfield Company, Toronto, Ont.
MACHINERY AND UTENSILS FOR BAKERS
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR CANDY
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR ICE CREAM
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland
*Northern Crane Works, Limited Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd. Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co. Limited. Brantford. Ont.
MACHINERY, punching and shearing.
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, railroad and car-shop
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd. Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd. Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton
*Canada Machinery Corporation Limited, Galt, Ont.
MACHINERY, special
Bawden Machine Co., Limited, Toronto.
*The John Whitfield Company, Toronto, Ont.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Canada Machinery Corporation, Limited, Galt, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WORK, special and repairs
*Canadian Rumely Co., Ltd., Toronto, Ont.
*John Whitfield Co., Toronto, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MALLEABLE, for carriages
*McKinnon Industries Limited, St. Catharines, Ont.
MALLEABLE IRON CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co. Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILINGS
*The Pedlar People Limited. Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont
*The Pedlar People Limited Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People, Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto.
MIXERS, chocolate, dough and paint
Fletcher Mfg. Co., Ltd., Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.
MORTISERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton. Georgetown, Ont.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
MOULDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto.
NAPHTHA
*The Imperial Oil Co., Limited, Toronto.
NECKYOKES
*McKinnon Industries Limited, St. Catharines, Ont.
NICKEL OXIDE
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
Coniagas Reduction Co., Limited, St. Catharines, Ont.
NICKEL METAL
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
NIPPLES, for radiators
*McKinnon Industries Limited, St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
OARLOCKS
*McKinnon Industries Limited, St. Catharines, Ont.
OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.
OFFICE DESKS
*Goderich Organ Co., Goderich.
OFFICE EQUIPMENT
*Office Specialty Co., Newmarket.
OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal.
Sherwin-Williams Co. of Canada, Limited. Montreal, Que.
OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.
OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.
OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton.
*Imperial Oil Co., Toronto.
OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*The Imperial Oil Co., Limited, Toronto.
OILS, road
*The Barrett Co., Ltd., Toronto and Montreal.
OIL HOLE COVERS
*Canadian Winkley Co., Limited, Windsor, Ont.
OIL CUPS, both screw top and hinge lid
*Canadian Winkley Co., Limited, Windsor, Ont.
OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.
ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.
ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.
OVERALLS
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.
OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.
OVERHEAD RUNWAYS
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Richards-Wilcox Canadian Co., Limited, London, Ont.
OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.
OXYGEN
*L'Air Liquide Society, Montreal.
PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.
PACKING BOXES
Barchard & Co., Limited, Toronto.
PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.
PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.
PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.
PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.
PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.
PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.
PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
PANELBOARDS
*Crouse-Hinds Co., Ltd., Toronto.
PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.
PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.
PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.

*For Display Advertisement see Index, Page 41

PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, enamelled blotting
*Provincial Paper Mills, Limited.
PAPER, kraft and all wrappings printings and specialities
*Beveridge Paper Co., Limited Montreal.
PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPERBOARDS
*Canada Boxboard Co., Limited, Montreal, Que.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Stauntons, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
Howard Smith Paper Mills, Limited, Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.
PATENT LITIGATION
Ridout and Maybee, Toronto.
PATTERN MAKERS' BRASS DOWEL PINS
*Canadian Winkley Co., Limited, Windsor, Ont.
PAY ROLL AUDITS
*International Business Machines, Limited, Toronto.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co., Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.
PIANO KEYS
The Otto Higel Co., Ltd., Toronto.
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto.
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.
PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.
M. A. Hanna & Co., Toronto.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Authes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G & J. Esplen, Montreal, Que.
PLASTERING TROWELS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUGS
*Crouse-Hinds Co., Ltd., Toronto.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd. Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co. Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
*William R. Perrin, Ltd., Toronto.
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton, Ont.
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSES, veneer
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSED STEEL AND BRASS GREASE CUPS
*Canadian Winkley Co., Limited, Windsor, Ont.
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULLEYS, wood split.
*Bernard Industrial Co., Fortierville, P.Q.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
Riordan Sales Co., Ltd., Montreal.
PULP, Unbleached Sulphite.
Riordan Sales Co., Ltd., Montreal.
PULP, sulphate and sulphite.
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited Toronto.
*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London,, Ont.
PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford Ont.
PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.
PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.
RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.
RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.
*United Brass & Lead, Ltd., Toronto
RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.
RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.
RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.
RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.
READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.
REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.
RECEPTACLES
*Crouse-Hinds Co., Ltd., Toronto.
REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.
REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.
REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.
REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.
REINFORCEMENT BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited Oshawa.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.
RINGS, gold
Caron Bros., Montreal, Que.
RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ROLLING STEEL DOORS
*A. B. Ormsby Co., Ltd., Toronto.
ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.
ROOFING, metal
*The A. B. Ormsby Co., Limited, Toronto.
ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
ROOFINGS, plastic and liquid
*Beveridge Paper Co., Limited, Montreal.
ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.
ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

*For Display Advertisement see Index, Page 41

ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.
RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.
RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.
RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.
RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.
SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.
SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal.
SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SANDPAPER
*Delany and Pettit, Ltd., Toronto.
SASH CORD, cotton
Hamilton Cotton Co., Hamilton,
SALT
Canadian Salt Co., Ltd., Windsor,
*Dominion Salt Co., Ltd., Sarnia,
SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.
SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.
SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.
SAWS, cross-cut and band
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWS, circular mill
Shurly & Deitrich, Galt, Ont.
SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.
SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.
SAWS, rip
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited Toronto.
SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.
SCALES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton.
SCALES, counter
The Gurney Scale Co., Hamilton,
SCALES, railway track, etc.
The Gurney Scale Co., Hamilton,
SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris.
Ham & Nott Co., Ltd., Brantford.
SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
*United Brass & Lead, Ltd., Toronto
SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.
SECURITIES, engraved
American Bank Note Co., Ottawa,
SERGES
Rosamond Woollen Co., Almonte,
SHAFTING
Canada Forge Co., Ltd., Welland,
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford,
SHAPERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
SHEATHING
*The Barrett Co., Ltd., Toronto and Montreal.
SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.
SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.
*The A. B. Ormsby Co., Limited, Toronto.
SHEETS, ETC.
*Tallhan Brass & Metal Co., Hamilton, Ont.
SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited,
SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.
SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
SHIP BUILDERS
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
SHIRTS
John W. Peck & Co., Ltd., Montreal, Que.
SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.
SHOE PEGWOOD
O. Chalifour, Quebec, Que.
SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.
SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.
SHOOKS
Barchard & Co., Ltd., Montreal.
SIGNAL CELLS
Canadian National Carbon Co., Ltd., Toronto.
SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.
SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.
*Deloro Smelting & Refining Co., Limited, Delcro, Ont.
SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.
SILVERWARE, sterling
Roden Bros., Limited, Toronto.
SINGLETREES
*McKinnon Industries Limited, St. Catharines, Ont.
SINKS, enamelled
Amherst Foundry Co., Limited Amherst, N.S.
SKATES, figure
Canada Cycle and Motor Co., Ltd.
SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.
SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.
SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.
SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.
SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
SLEIGHS
Tudhope-Anderson Co., Limited, Orillia, Ont.
SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.
SLOTTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
SMALL METAL STAMPINGS, in quantities
*Canadian Winkley Co., Limited, Windsor, Ont.
SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.
SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
SMOKE-STACKS
*Steel Trough and Machine Co., Ltd. Tweed, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
SNAPS, for harness
*McKinnon Industries Limited, St. Catharines, Ont.
SOAPS
J. Barsalou & Co., Ltd., Montreal
SOAP (soft, oil)
The Imperial Varnish & Color Co. Ltd., Toronto.
Sherwin-Williams Co. of Canada Limited, Montreal, Que.
SOCKETS
*Crouse-Hinds Co., Ltd., Toronto.
SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto
SODA WATER FOUNTAINS AND ACCESSORIES
Fletcher Mfg. Co., Ltd., Toronto.
SOIL PIPE
Anthes Foundry, Ltd., Toronto.
SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
SOLDER, silver
Geo. H. Lees & Co., Hamilton.
SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.
SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton Ont.
SNOWSHOES
Helt, Renfrew, Ltd., Quebec, Que.
SPECIAL MACHINERY
*Globe Engineering Co., Limited, Hamilton, Ont.
SPELTER
*Consolidated Mining & Smelting Co. of Canada, Limited, Toronto.
SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth N.S.
SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd. Galt, Ont.
SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.
SPIRITS
*Hiram Walker & Sons, Limited, Walkerville, Ont.
SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.
SPRAYERS
Spramotor Co., London, Ont.
SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRING SHACKLE BOLTS
*Canadian Winkley Co., Limited, Windsor, Ont.
SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.
SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.
STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.
STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.
STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.
*Wentworth Mfg. Co., Hamilton.
STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STAMP MILLS
*Jenckes Machine Co., Sherbrooke.
STATIONERY, office
Harris Lithographing Co., Toronto.
STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland.
STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.
STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.
STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
*Burlington Steel Co., Ltd., Hamilton, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited, Hamilton.
STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.
STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.
STEEL DOORS, rolling
*The A. B. Ormsby Co., Limited, Toronto.
STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
STEEL PLATE WORK
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Toronto Iron Works, Ltd., Toronto.
STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.
STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
STEEL SHELVING
*Dennis Wire & Iron Works Co., London.
STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.
STEEL WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
STELLITE
*Deloro Smelting & Refining Co., Ltd., Deloro and Toronto.

*For Display Advertisement see Index, Page 41

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STEPS, for buggies and carriages
*McKinnon Industries Limited, St. Catharines, Ont.
STEREOTYPING
Central Press Agency, Toronto
STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
STONE
The Hagersville Contracting Co., Hagersville, Ont.
STONEWARE
*Jas. W. Foley & Co., St. John, N.B.
STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.
STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.
STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.
STOVES AND RANGES
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.
STRAWS, paper drinking
Fletcher Mfg. Co., Ltd., Toronto.
STRAWBOARD
*Canada Boxboard Co., Limited, Montreal Que.
STREET LIGHTING FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.
STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
STUMP EXTRACTORS
*The John Whitfield Company, Toronto, Ont.
SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.
SURFACERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
SWITCH STANDS
Canadian Ramapo Iron Works, Ltd. Niagara Falls, Ont.
TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton,
TANKS
*Toronto Iron Works, Ltd., Toronto.
*Chicago Bridge & Iron Works. Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.
TANKS, steel storage
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.
TAPS
*Butterfield & Co., Rock Island, P.Q
*Pratt & Whitney Co., Dundas.
TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.
TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
TENTS
Turner, J. J., & Sons, Peterboro,
*Scythes & Co., Ltd., Toronto.
TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.
TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.
TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.
TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TIE PLATES, for railways
*McKinnon Industries Limited, St. Catharines, Ont.
TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TIME RECORDERS
*International Business Machines, Limited, Toronto.
TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TOOLS
*The John Whitfield Company, Toronto, Ont.
TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton.
TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton.
TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.
TRACTORS, kerosene and gasoline
*Gilson Manufacturing Co., Ltd., Guelph.
TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.
TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.
TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.
TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.
TRUCKS
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton.
*Northern Crane Works, Limited. Walkerville.
TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.
TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.
TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.
TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.
TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.
TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
TUBING, fibre
*Beveridge Paper Co., Limited. Montreal.
TUBING, gold and silver
Canadian Seamless Wire Co., Toronto.
TUBS, Ice cream
Fletcher Mfg. Co., Ltd., Toronto.
TUMBLERS, foundry
*Northern Crane Works, Limited, Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited. St. Catharines.
TURBINE PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
TURPENTINE
*Brown Corporation, La Tuque, Que.
TWEEDS
Rosamond Woollen Co., Almonte. Ont.
TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.
TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.
TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd. Walkerville, Ont
UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.
UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
UNIONS
*Dart Union Co., Ltd., Toronto
*Otterville Mfg. Co., Ltd., Otterville, Ont.
UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.
VALVES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
T. McAvity & Sons, Ltd., St. John, N.B.
*Penberthy Injector Co., Ltd., Windsor.
VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Mueller Mfg. Co., Ltd., Sarnia.
*Penberthy Injector Co., Ltd., Windsor.
*United Brass & Lead, Ltd.. Toronto
James Morrison Brass Mfg. Co., Limited, Toronto.
VALVES, pressure reducing
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, regrinding globe, angle. cross checks, swing checks.
*Mueller Mfg. Co., Ltd., Sarnia.
Penberthy Injector Co.. Ltd., Windsor, Ont.
VALVES, regulating
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.
VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt
J. & J. Taylor, Ltd., Toronto.
VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.
VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.
VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
VOLTMETERS AND AMMETERS
*Crouse-Hinds Co., Ltd., Toronto.
WAGONS
TudhopeAnderson Co., Ltd., Orillia,
WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.
WASHERS
*The Steel Company of Canada, Limited, Hamilton.
*United Brass & Lead, Ltd., Toronto
WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.
WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.
WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.
WASTES, wool and cotton
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited, Montreal.
*The Barrett Co., Ltd., Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton, Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont.
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd.. Toronto.
WHEEL FLANGES
*McKinnon Industries Limited, St Catharines, Ont.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal. Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton. Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton. Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited. Montreal.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia. Ont.
WHIPS AND LASHES
Lay Whip Co.. Rock Island, Que.
WHIPSOCKETS
*McKinnon Industries Limited, St. Catharines, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines. Ont

*For Display Advertisement see Index, Page 41

WHITE LEAD
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Medicine Hat Pump & Brass Mfg. Co., Medicine Hat, Alta.

WINDOW SHADES
Daly & Morin, Montreal, Que.

WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.

WIRE BALE TIES
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.

WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal. Que.

WIRE, feeder and trolley
*Eugene F. Phillips, Electrics Works, Ltd., Montreal.
*Standard Underground Cable Co of Canada, Ltd., Hamilton, Ont.

WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.

WIRE, insulated electric
*Northern Electric Co., Limited Montreal.
*Eugene F. Phillips, Electrica' Works, Ltd., Montreal.
*Standard Underground Cable Co of Canada, Ltd., Hamilton, Ont.

WIRE, weatherproof
*Northern Electric Co., Limited Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co of Canada, Ltd., Hamilton. Ont.

WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd Hamilton.

WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Ltd Toronto

WIRING DEVICES
*Crouse-Hinds Co., Ltd., Toronto.

WOOD
Standard Fuel Co., Toronto.

WOOD BORERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

WOOD PRINTERS
Barchard & Co., Ltd., Toronto.

WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi Chicoutimi Que.

WOODBOARD
*Canada Boxboard Co., Limited, Montreal, Que.

WOOD SHOP, general work
*Canadian Rumely Co., Limited, Toronto, Ont.

WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd Galt, Ont

WOOD STAVE PIPE
T. A. Morrison & Co., Montreal.

WOOL
*H. V. Andrews, Toronto.

WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte, Ont.

WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada, Ltd., Niagara Falls, Ont.

WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.

WRENCHES
*McKinnon Industries Limited, St. Catharines, Ont.

WROUGHT IRON PIPE
*The Steel Compony of Canada, Ltd., Hamilton.

WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.

YARNS, cotton
Hamilton Cotton Co., Hamilton, Ont.

ZINC, electrical
*The Canada Metal Co., Toronto

WHEN YOU NEED

SPECIAL MACHINERY

Our skilled organization and first-class equipment can save you money on the highest grade product.

May we have the privilege of quoting on your requirements?

Globe Engineering Co., Ltd. - HAMILTON, CANADA

T H-E

Reconstruction Period Lighting



The tendency of labor is towards shorter hours. This must be offset by greater production. Greater production demands as one of the basic working conditions that the lighting arrangements be just about 100% efficient. There's where Hydro "Quality" Lamps and Lighting Service come in. Let us help you select and place your lamps.

The Toronto Hydro-Electric System

226-8 Yonge St. Branch—Gerrard and Carlaw

Vol. XIX., No. 11 TORONTO, MARCH, 1919 $2.00 Per Year

INDUSTRIAL CANADA

THE SUPER-SALESMAN

Charles M. Schwab has come to represent pretty much the idea of a super-salesman. If he has not qualified, it would indeed be difficult to find a man who has.

Mr. Schwab says:

"The super-salesman is a man true to the interests of his customer, and whose supreme purpose is to quicken the imagination of his customer and make the customer see the true virtues of the goods the salesman is selling. The super-salesman foresees the needs of his customers and provides against those needs in full faith that the event will justify his foresight. The super-salesman puts his ideals above his profits, in full confidence that profits will surely accrue to fine ideals intelligently executed. The super-salesman placed his all at the disposal of his country in its hour of need, and now looks forward eagerly to the opening of the greatest era of constructive effort and rapid development of civilization which mankind has ever known."

It is significant that Mr. Schwab's companies are amongst the most aggressive and profitable advertisers in the world.

J. J. GIBBONS, LIMITED

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Cables—Gibjay, Toronto

Codes—ABC, 5th Edition

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HEAD OFFICE TORONTO · BRANCH OFFICES, MONTREAL, HAMILTON, WINNIPEG, VANCOUVER, HALIFAX, QUEBEC.

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(AN ELECTRIC FURNACE CORUNDUM)

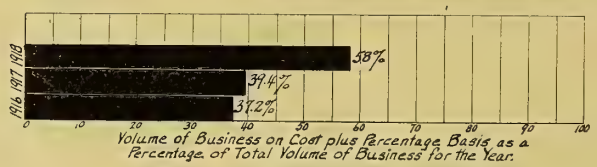
REDUCES POLISHING COSTS

FREE TRIAL SAMPLE FURNISHED ON REQUEST

Made by

CORALOX LIMITED - Hamilton, Ont.

Succeeding **D. A. BREBNER, Limited**



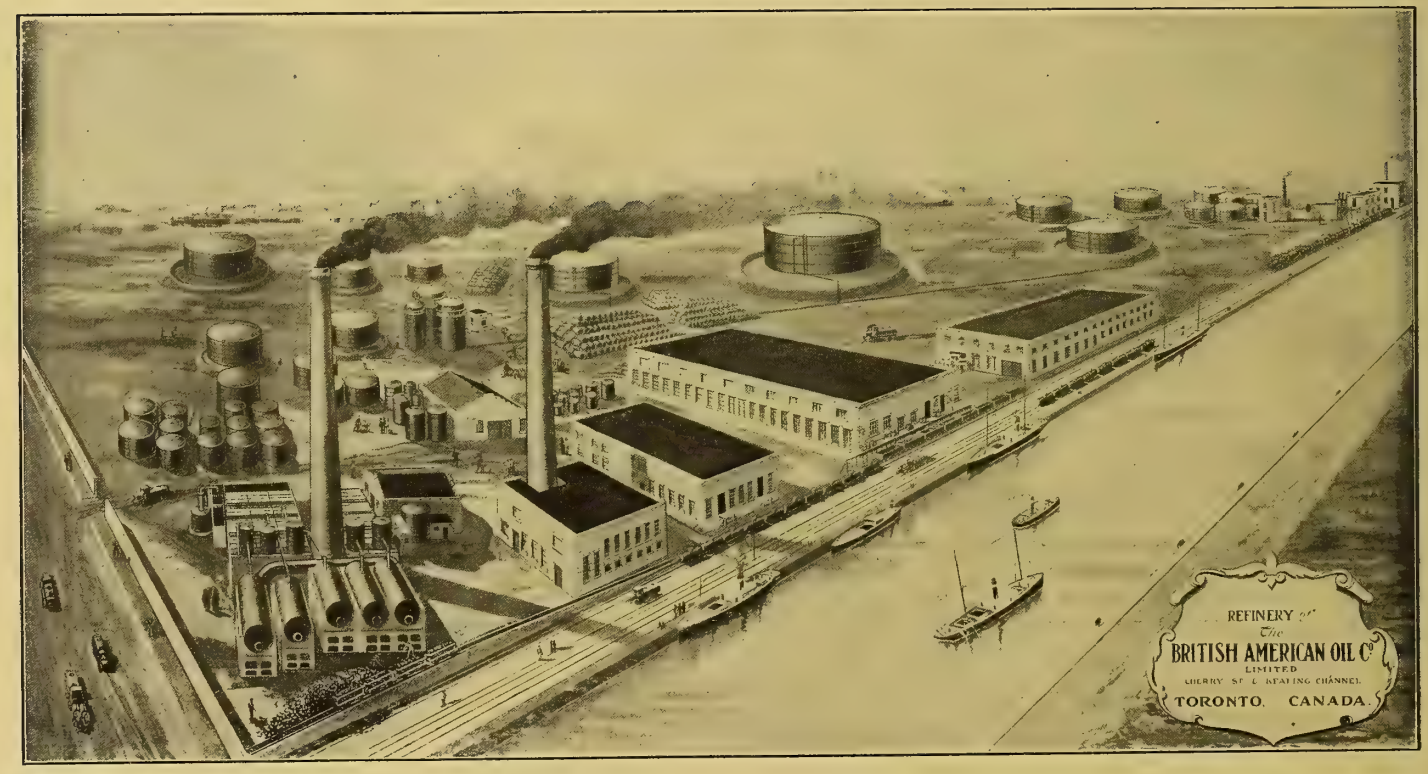
WE NEVER ABUSE THEIR CONFIDENCE IN US

JOHN V. GRAY CONSTRUCTION CO., LTD.

GENERAL CONTRACTORS

625 Confederation Life Building - - - - TORONTO, ONT.

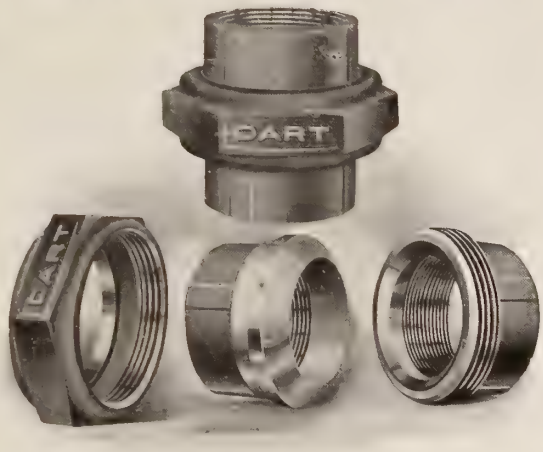
THE BRITISH AMERICAN OIL CO., LIMITED



Head Office: ROYAL BANK BUILDING, TORONTO Branches: Montreal, Ottawa, London, Windsor, Etc.

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UNION PIPE COUPLINGS



Dart Unions are a guarantee of trouble-free pipe coupling service. There is No Upkeep Cost, No Loss, No Leaks.

Get them from Your Jobber

STAY TIGHT

Dart Unions never have to be replaced. They last a life-time and can be used over and over again.

Dart Union Co., Ltd.
Toronto, Ont.

GRACE & CO., LIMITED

DOMINION EXPRESS BUILDING

MONTREAL - CANADA

EXPORTERS

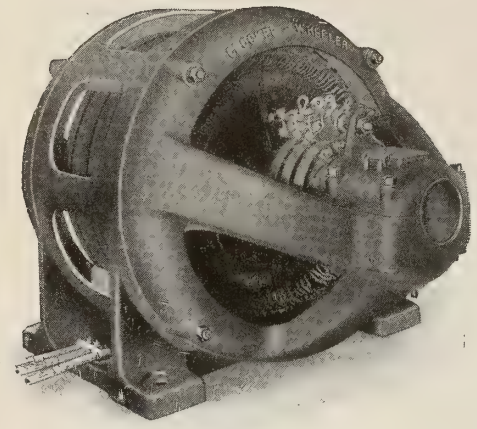
IMPORTERS

With our own extensive connections embracing practically all markets of importance we are in an unusual position to advise Canadian Manufacturers regarding Export Opportunities and also to submit offerings of the raw materials in which they are interested.

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RIO DE JANEIRO LIMA TOKIO SHANGHAI SAN FRANCISCO
VALPARAISO CUBA JAMAICA BUENOS AYRES SANTOS
STOCKHOLM BARCELONA GENOA PARIS

Index to Advertisements.....Page 41 Contents.....Page 43

"RECONSTRUCTION" MEANS "COMPETITION"



Wound Rotor Induction Motor, 100 H.P., 440 Volts, 3 Phase, 60 Cycles, 720 r.p m.

YES—THE "RECONSTRUCTION" PERIOD IS SURE TO BE A HIGHLY COMPETITIVE ONE.

BUSINESS IS BOUND TO GO TO THE MOST EFFICIENT PLANTS.

ONE OF THE BIG ITEMS IN PLANT EFFICIENCY IS EFFICIENT MOTORS. CANADIAN CROCKER - WHEELER MOTORS HAVE SCIENTIFIC DESIGN AND HIGHEST GRADE MATERIALS—THEY STAND UP AND DELIVER A STEADY POWER STREAM UNDER THE SEVEREST CONDITIONS—THEY ARE STRANGERS IN THE REPAIR SHOP.

LET US SEND OUR LATEST BULLETIN

THE CANADIAN
CROCKER - WHEELER COMPANY
LIMITED

Head Office and Works: ST. CATHARINES, ONT.

Manufacturers and Electrical Engineers

District Offices: TORONTO and MONTREAL

COPPER SPELTER LEAD

Tadanac Brand

PRODUCED IN CANADA

BY

The Consolidated Mining and Smelting Co. of Canada, Ltd.

TRAIL, British Columbia

COPPER—Electrolytic Ingot, Bar, Slab and Cake

SPELTER—High-Grade Electrolytic Zinc, Brass Special and Prime Western

PIG LEAD—Chemical, Corroding and Common

Sales Office: C.P.R. Bldg., Toronto

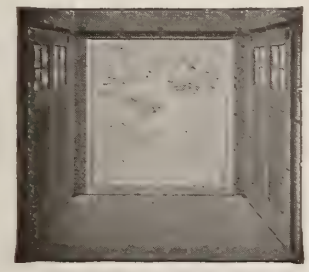


BULLDOG STEEL JOIST HANGERS

They never let go! Stronger than malleable. All sizes and styles for all kinds of work. Save space and time in erection.

GARAGE DOOR HARDWARE OF ALL KINDS FOR ANY PURPOSE

Angle Doors, Parallel Doors, etc. Special jobs receive the prompt attention of our engineering department. Let us know your requirements.





Put Your Trucks on The Ceiling!

The Modern Method of Factory Transportation

A Richards-Wilcox Carrier System—either I-Beam or Trolley—will pay for itself in one year on actual pay-roll saving, not to mention the increased efficiency. Occupies no floor space. Always ready for use. Operates easily, one man can handle 2,500 lbs. Trolley carriers made in sixteen styles and sizes for loads up to 2,500 lbs. For heavier loads use I-Beam Equipment.

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"A hanger for any door that slides"

"R-W" TROLLEYS ARE BEST FOR ALL SLIDING DOORS

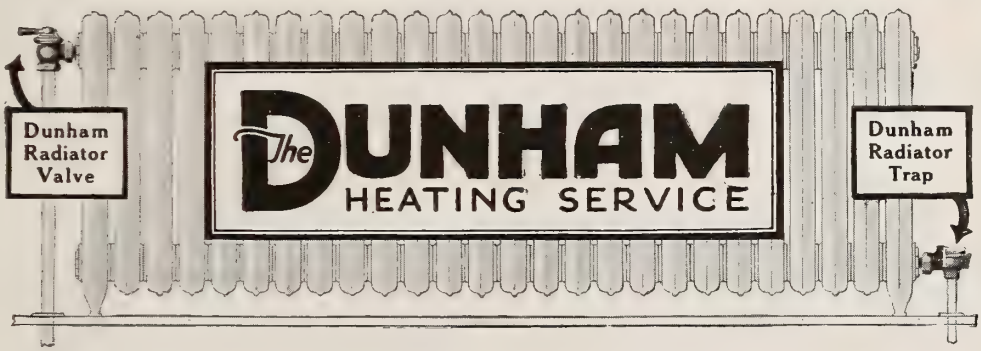


Specified by leading architects and engineers throughout Canada and the United States. "A hanger for any door that slides."

FIRE DOORS AND FIRE DOOR HARDWARE WITH UNDERWRITERS' LABEL

All styles, single or double, sliding or swinging. A fire door with labeled hardware is the surest way to prevent fire from spreading.





A Timely Service---and the Company behind it

The public wants better steam heating service---more comfort per ton of coal. This Company is in a most favorable position to meet this demand through its co-workers---the architects, heating and ventilating engineers, heating contractors and builders---to whom it offers practical co-operation that will increase their prestige as well as their volume of business.

Any man who uses, specifies or installs steam heating equipment will find it advantageous to learn more about Dunham Heating Service---the product of 15 years knowledge of steam heating in all its phases.

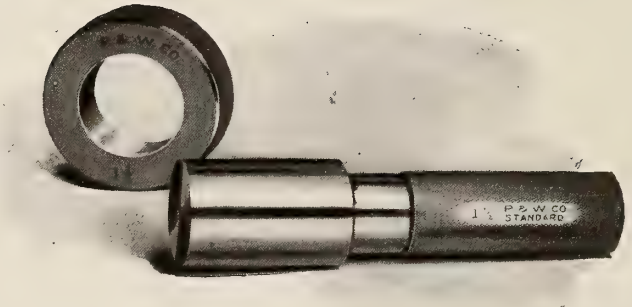
C. A. DUNHAM COMPANY, LIMITED, Toronto, Ontario

HALIFAX MONTREAL OTTAWA WINNIPEG VANCOUVER CALGARY

SMALL TOOLS

MILLING CUTTERS

In High Speed or Carbon Steel



Plain Side Convex
Concave Angular
and
Special Forms

Special Inserted
Blade Cutters

Our tools are manufactured from the best materials procurable, by skilled workmen with most modern equipment.

QUALITY GUARANTEED

Prompt service is assured at our nearest store, where P. & W. Small Tools are stocked for immediate delivery.

Write for Our No. 9 Catalogue

PRATT & WHITNEY CO.
of Canada, Limited
Dundas - Ontario

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	B.C. Equipment Co.

BERTRAM MACHINE TOOLS

For Structural, Bridge and Shipbuilding Plants

Modern in design and built for heavy service, our line embraces a varied equipment of Punches, Shears, Bending and Straightening Rolls, Coping Machines, Rotary and Plate Planers.

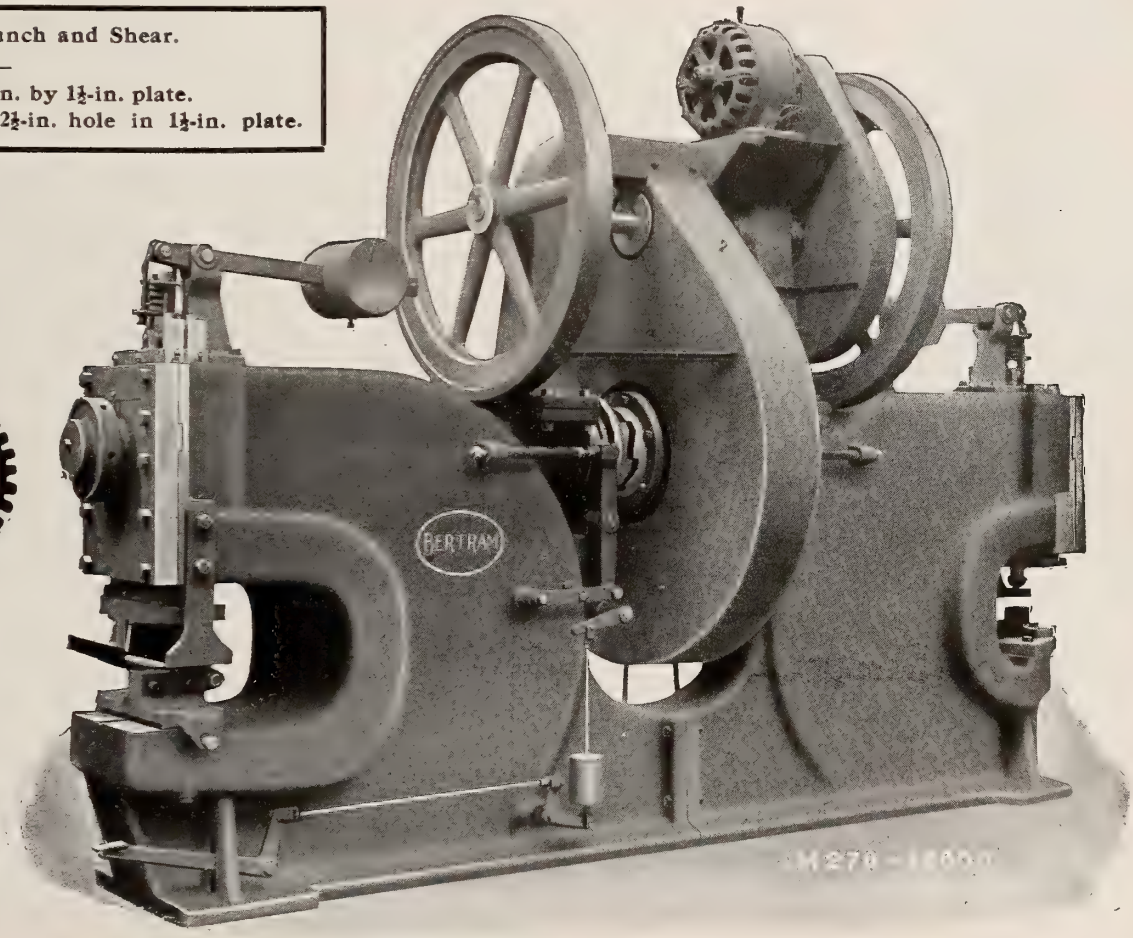
The assistance and advice of our engineers are yours for the asking.

THE JOHN BERTRAM & SONS CO., Limited

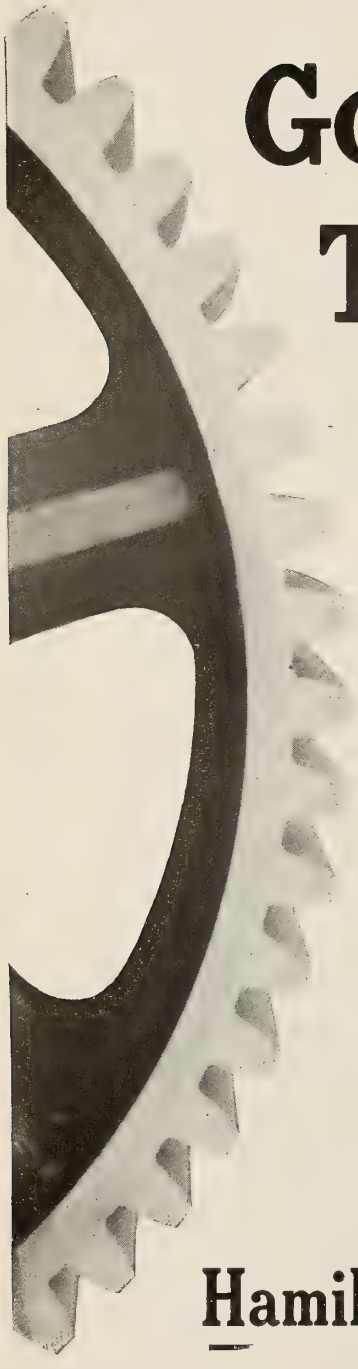
Dundas - Ontario - Canada

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	609 Bank of Ottawa Bldg.

Double Punch and Shear.
Capacity—
Shears 8-in. by 1½-in. plate.
Punches 2½-in. hole in 1½-in. plate.



CUT GEARS



Good Teeth!

Get Our Quotations

Hamilton Gear & Machine Co.

Van Horne Street - TORONTO

STELLITE

"Anecdotal"

The Superintendent in one of the largest Machine Shops on the Continent recently tried an experiment with the idea of substituting High Speed Steel for ***STELLITE*** under the delusion that High Speed Steel would do as well and be cheaper.

He gave four tools tipped with High Speed Steel and instructions to do his best to one of the operators. The production report was watched carefully for a week, and it was noted that the man with the High Speed Steel tools was daily in advance of his fellows.

The Superintendent then paid a visit to the operator to compliment him on his work when the following conversation ensued:

Q.—Are you the chap I gave the High Speed Steel Tools to?

A.—Yes, sir.

Q.—How do they work?

A.—Fine, there they are on the bed of the lathe.

Q.—What have you got in the lathe?

A.—***STELLITE***—How do you think I got my production?

Moral—If the operator wants ***STELLITE*** get it for him—he knows, and the results show in added production.

Deloro Smelting & Refining Co.

Limited

H.O. and WORKS: DELORO, ONT.

Toronto: 200 King St. W.

Montreal: 315 Craig St. W.

MEADOWS SERVICE

A Fine Canadian Industry

whose plant has been brought to a high state of efficiency by using our service. We refer to Messrs. A. Schrader's Sons Inc., Toronto. Every automobile owner is directly benefited by Schrader efficiency reflected in their absolutely dependable tire valves and pressure gauges

Mr. Cole, the General Manager, once said to us, "There is one thing about the Geo. B. Meadows Company, when we want them, they are on the job, and our work is put through in the way we wish and when we want it. We have never had such prompt service as you give, either here in Canada or in the United States"

We are ready to do the same for you



This illustration shows Steel Assembling Tables and Steel Chairs manufactured in our factory for the Schrader Plant



The Racks pictured above had to be carefully designed so as to stand the eccentric loads. Designing and planning is part of our service

THE GEO. B. MEADOWS
TORONTO WIRE, IRON & BRASS WORKS CO
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TORONTO ——— CANADA



Electrical Safety

Thousands of power companies and all types of users of electricity throughout North America protect millions of circuits with

ECONOMY
Renewable FUSES

ECONOMY FUSES are accurately rated. That means safety. They can be used over and over. That means economy. It takes but a moment to replace the link and renew the fuse. That means convenience.

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The ECONOMY is a pioneer renewable fuse—the first to be proved practical. It is widely imitated but not duplicated.

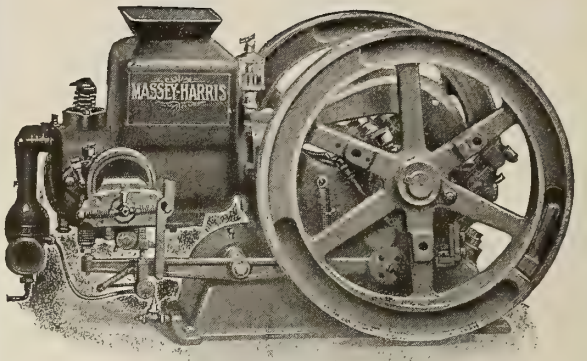
Order by brand from your electrical jobber or dealer.

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THE MASSEY-HARRIS ENGINE is Famous for its Reliability, and Economy of Operation. It can be depended on the year round in any kind of weather, and the Cost of Maintenance is very low—it is easy on the Gasoline.

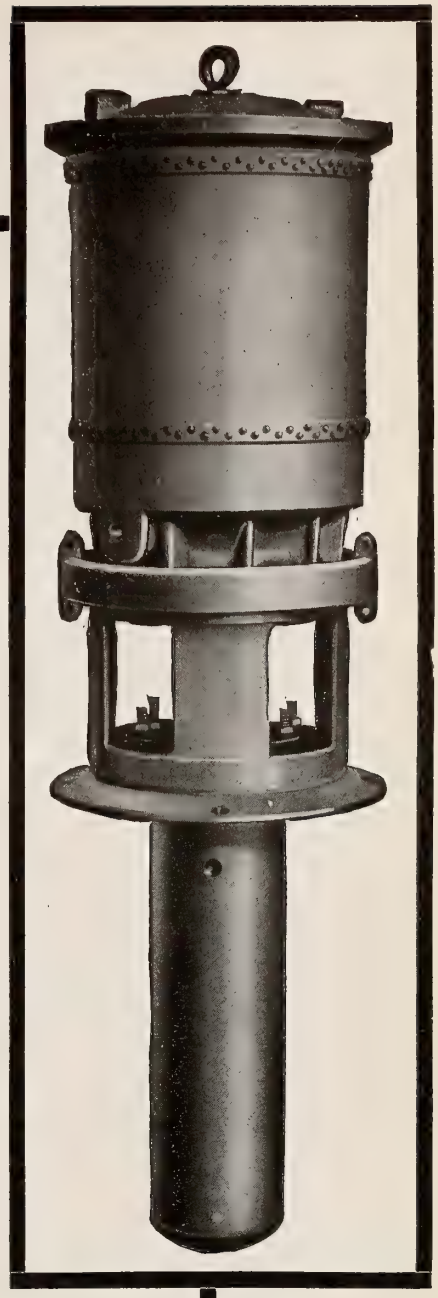
The CARBURETOR on the Massey-Harris is Simple and Efficient. The air enters at great velocity and entirely surrounds the Gasoline, breaking it up into an extremely fine mist or spray, thoroughly mixed with the air.

The mixture, therefore, is a mechanical one, and does not depend on vaporising the Gasoline. As a result a perfect mixture can be obtained in cold weather, and the Engine started without difficulty.

Efficient Service—Every Massey-Harris-Agency is a Service Station

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HERE IT IS—

—the boiler-firing device that takes away all guess-work, that does its work automatically on a true scientific basis—the

JONES
Underfeed Stoker

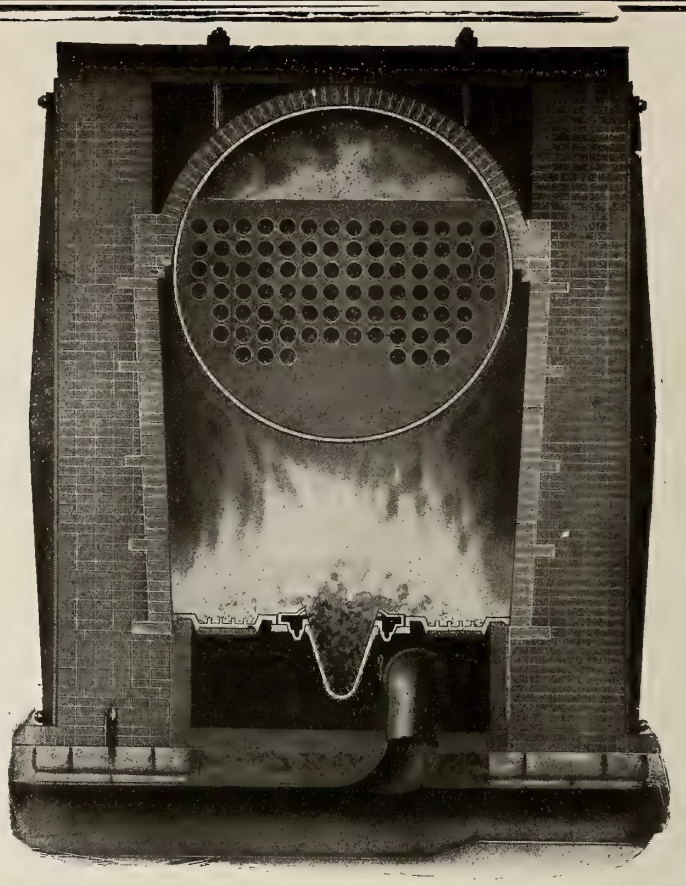
You ought to be interested in the **Jones Underfeed Stoker** because it is an efficient stoking device that quickly repays its purchase price. Actual, every-day experience with the **Jones** demonstrates that fuel savings run between 15 and 25 per cent.

A **Jones Stoker** will handle any fuel from Dust to Run of Mine, and it gets you the maximum results in steam from any grade of coal used.

Your Inquiry Will Be Welcomed

Jones Underfeed Stoker Co.
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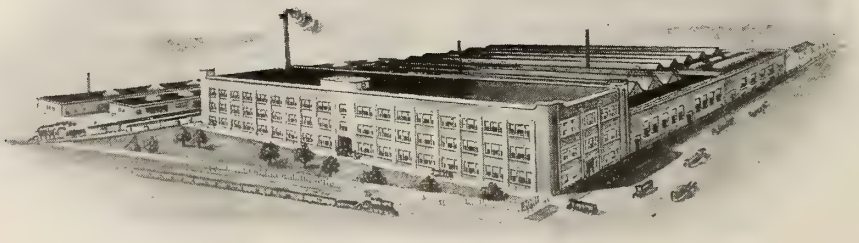
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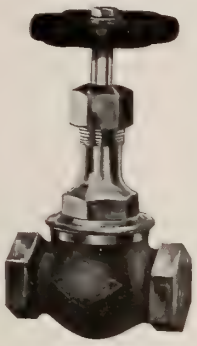


Fig. 106



Factory and Head Office of
JENKINS BROS. LIMITED
Montreal, Canada



Fig. 141

Where plants are scientifically operated, valve value is measured by service rendered, and by yearly ***lack*** of up-keep cost.

If valves break down before other items of equipment, an injustice is done to the entire plant; because valves should last as long as good plant equipment. Good valves do.

Consider—40 per cent. of the Nation's Coal Pile is lost each year by power plants, from their coal investment through poor steam transmission, and from unnecessary labor costs.

JENKINS BROS.' VALVES will keep your plant running and save you money.

A Protection to the User

A steam user who installs Jenkins Bros.' Valves, can do so with the knowledge that he is protected by the maker against defects and imperfections. Our dealers have instructions to replace, without question, any imperfect or defective Jenkins Bros.' Valve returned to them.

Catalogue No. 8 sent free on request.

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Light Rails – 12 lbs. to 45 lbs.

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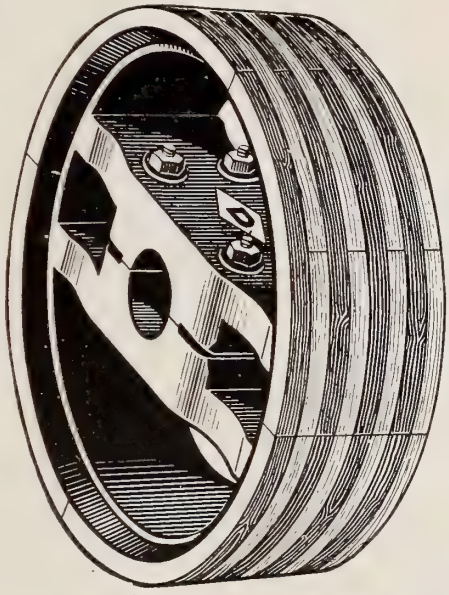
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Victories of Peace

If Canada is to share in the Victories of Peace she must translate into industrial activity the spiritual valor of her men. War developed untold possibilities in human energy.

They and we know the part that engineering played in war, but they and we know that its part will be infinitely greater when applied to the arts of peace.



Men who did big things are not going to let their energies lie fallow because the conflict is done. Already they are grasping industrial opportunities, and the driving force and the unconquerable spirit that kept them at the big task overseas will make them formidable competitors here. We welcome them back into industrial life, and we offer them the best that we have to aid them in re-establishing their industrial footing.

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We have made great strides in productive capacity in the past four years; and we are eager to match this capacity with the initiative and ability of new forces in the industrial world.

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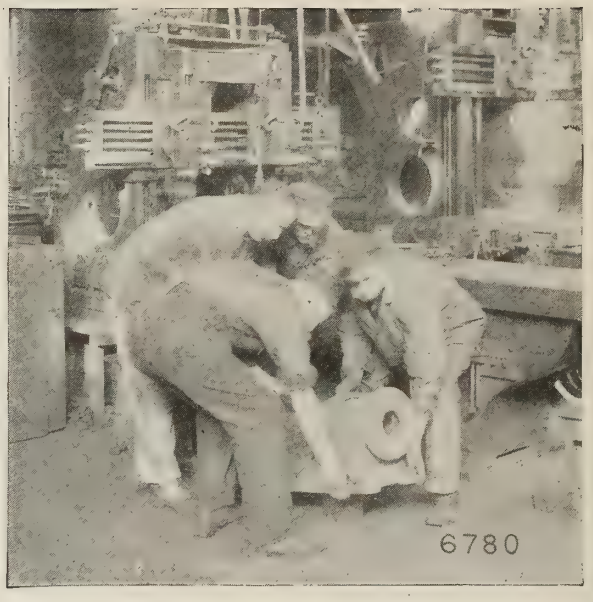
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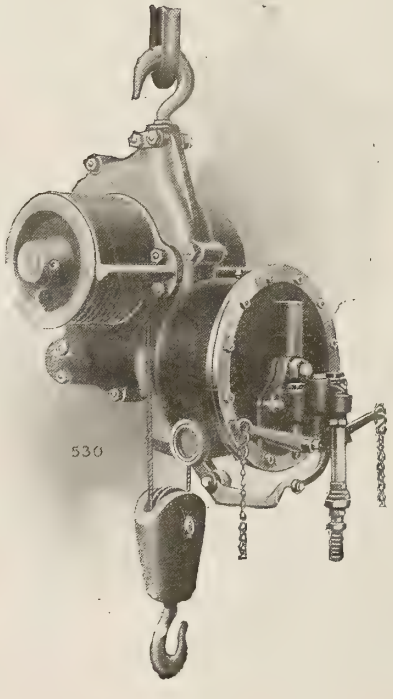
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"Imperial" hoists are made in sizes from 1 to 5 tons—send for our bulletin

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The Toronto Harbor Commission Office Building—built of Truscon Reinforced Concrete and equipped throughout with Truscon Steel Casements and Truscon Spot Grounds. The Government chose Truscon Building Products—through them they have gained durability, economy, beauty, and fire-proofness. Truly, no GOOD building can be built without them.

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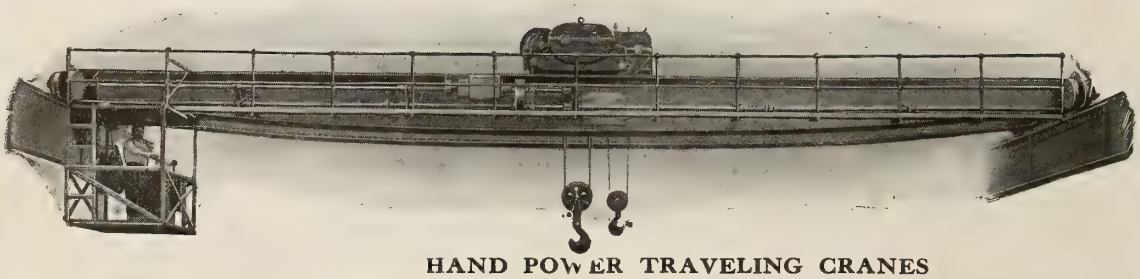
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A Rolling Steel Door 68 ft. High x 9 ft. 4 in. Wide

Supplied for Barnett-McQueen Company, Limited, at Richardson's Elevator, Port Arthur, Ont.

A Rolling Steel Door was the only solution possible for this opening. It is here that the arm or leg that loads the golden grain into the vessels protrudes. Rubber and other types of doors have been used unsuccessfully. This is a complete success. It is just one of the many difficult door problems that are overcome with the use of Rolling Steel Doors.

Have you ever thought of how economical they are as regards space? How really fireproof they are—how easily they operate, and how long they last? They have everything that means investment value.

Let us submit our Rolling Door proposition to you for your present or future buildings. You will be satisfied.

The Great Northern Railway at Vancouver used 130 Rolling Steel Doors.

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And many other customers all over the country have ordered, and re-ordered and are enthusiastic over these doors. Let us send you our Catalogue and Blue Prints.

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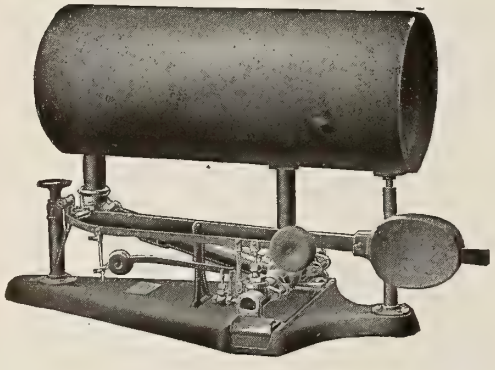
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can be secured in your power plant this winter by the installation of the

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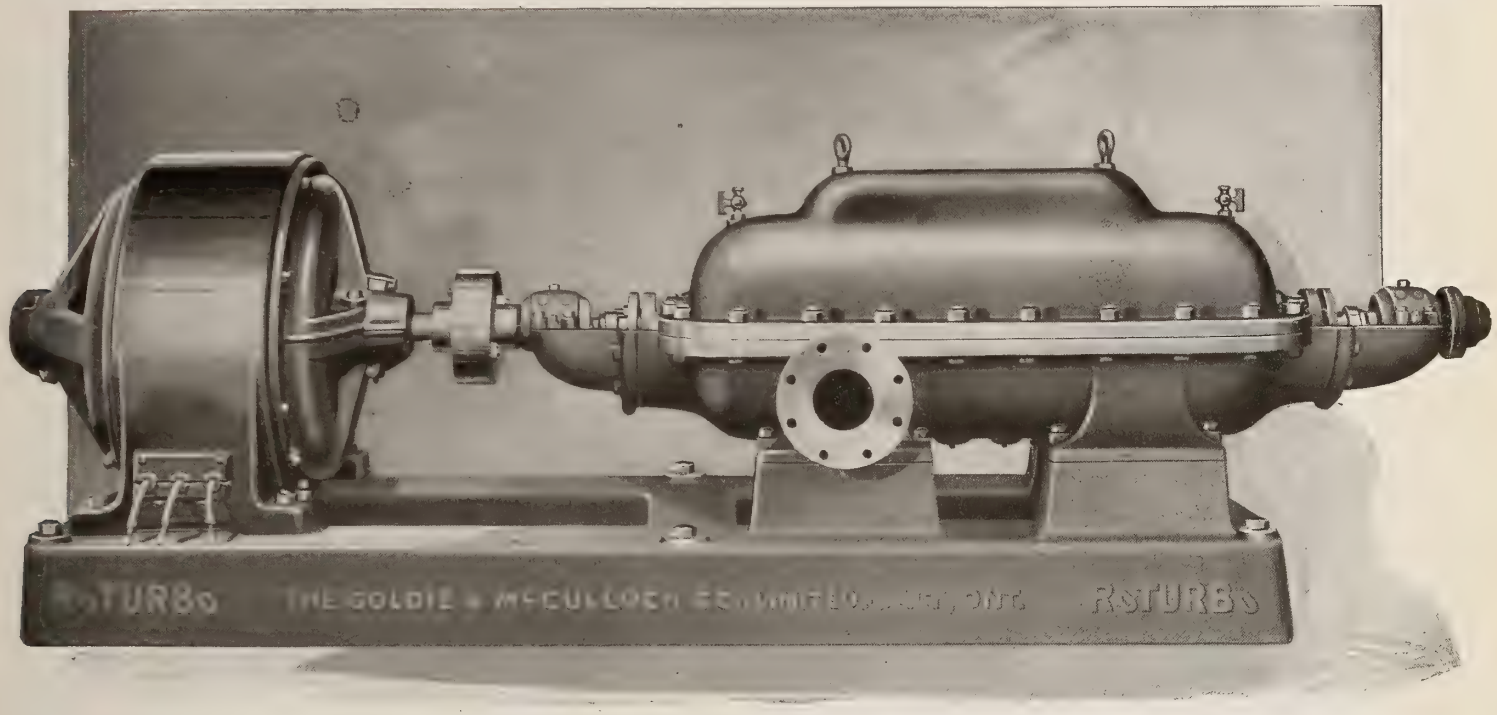
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RoTURBo PUMPS

ARE SELF-REGULATING

And bear in mind that in addition to this self-regulating feature the original high efficiency of **RoTURBo** Pumps remains practically constant throughout a wide range of duty.



Motor Driven Type B4. Eight Stage REES **RoTURBo**
Patent Pressure Chamber Pump

A high pump efficiency rating amounts to very little unless it remains constant over a wide variation of pressure heads. **RoTURBo** design meets these requirements. Its self-regulating features also insure your prime mover against damage by overloading.

The **RoTURBo** will meet your pumping problems with greater economy and with higher efficiency.

We are glad to announce that we have secured the sole manufacturing rights for CANADA of the REES **RoTURBo** PRODUCTS and shall be pleased to supply complete information on request.

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"Best by Test"



Straight Cross

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Every day physical and analytical tests are made on the mixture which goes into G.F.E. Fittings.

Result—uniformity of mixture and casting.



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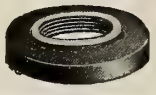
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Besides daily tests of strength each fitting is subjected to a rigid individual inspection. Every fitting not up to standard and of A1 workmanship is thrown out.

Result—perfect fittings.



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We are Specialists on Service



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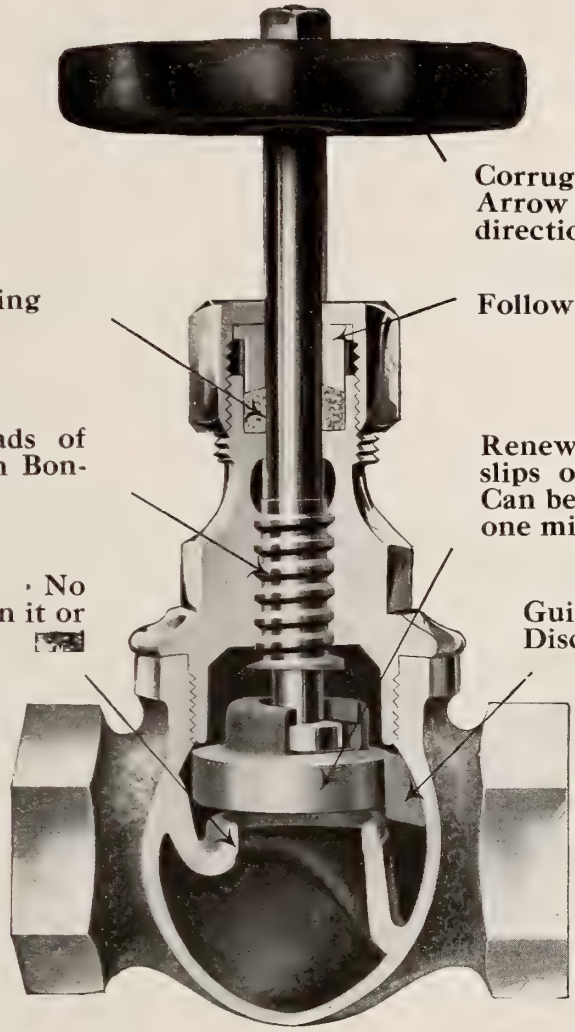
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Palmetto Twist Packing

Follower in Stuffing Box.

At least Four Threads of Spindle engaged with Bonnet at all times.

Renewable Bakelite Disc slips over end of spindle. Can be replaced in less than one minute.

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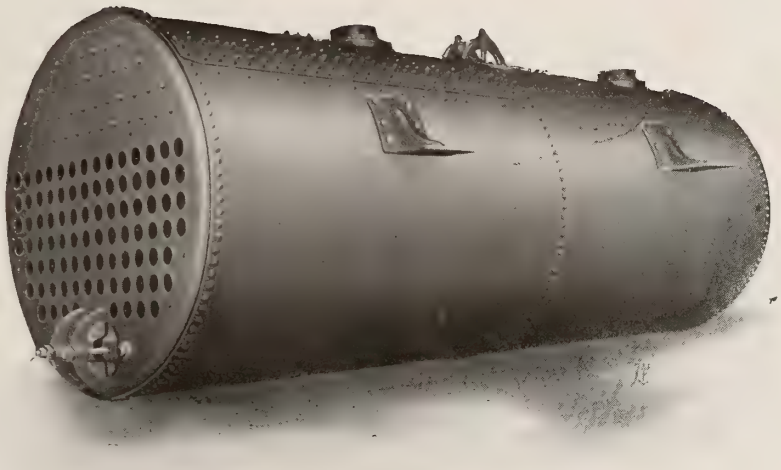
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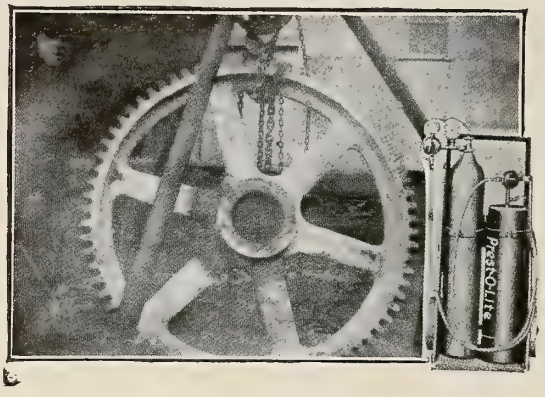
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This Expensive Gear Wheel Reclaimed at Trifling Cost

THIS Gear Wheel, in a large plant at St. Catharines, was broken recently. To replace it would have taken much valuable time and represented quite a serious expense.

A local Prest-O-Lite operator was called in and undertook to repair the casting in record time at trifling cost.

The work was done by the job welding department of the International Garage, St. Catharines, Ont., and has given complete satisfaction.

Prest-O-Lite Oxy-Acetylene Welding is proving a great economic factor in the Factories, Mills, Railroads, Mines and Machine Shops of Canada.

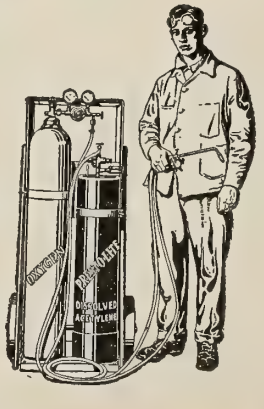
Prest-O-Lite PROCESS

employs both gases (acetylene and oxygen) in portable cylinders. Prest-O-Lite Dissolved Acetylene is backed by Prest-O-Lite Service, which insures prompt exchange of full cylinders for empty ones; provides dry, purified gas, insuring better welds, quicker work and lower operating cost.

Apparatus consists of an equal pressure blow pipe, automatic regulators and gauges, and all necessary equipment. Adaptable for oxy-acetylene cutting by the addition of special cutting blow pipe.

Thorough instructions are furnished free to every user of Prest-O-Lite Dissolved Acetylene. Any average workman who understands metals can learn the welding process quickly and easily.

We will gladly send illustrated literature and interesting data showing actual instances of savings made by others. It may suggest valuable ideas to you. Write for it.

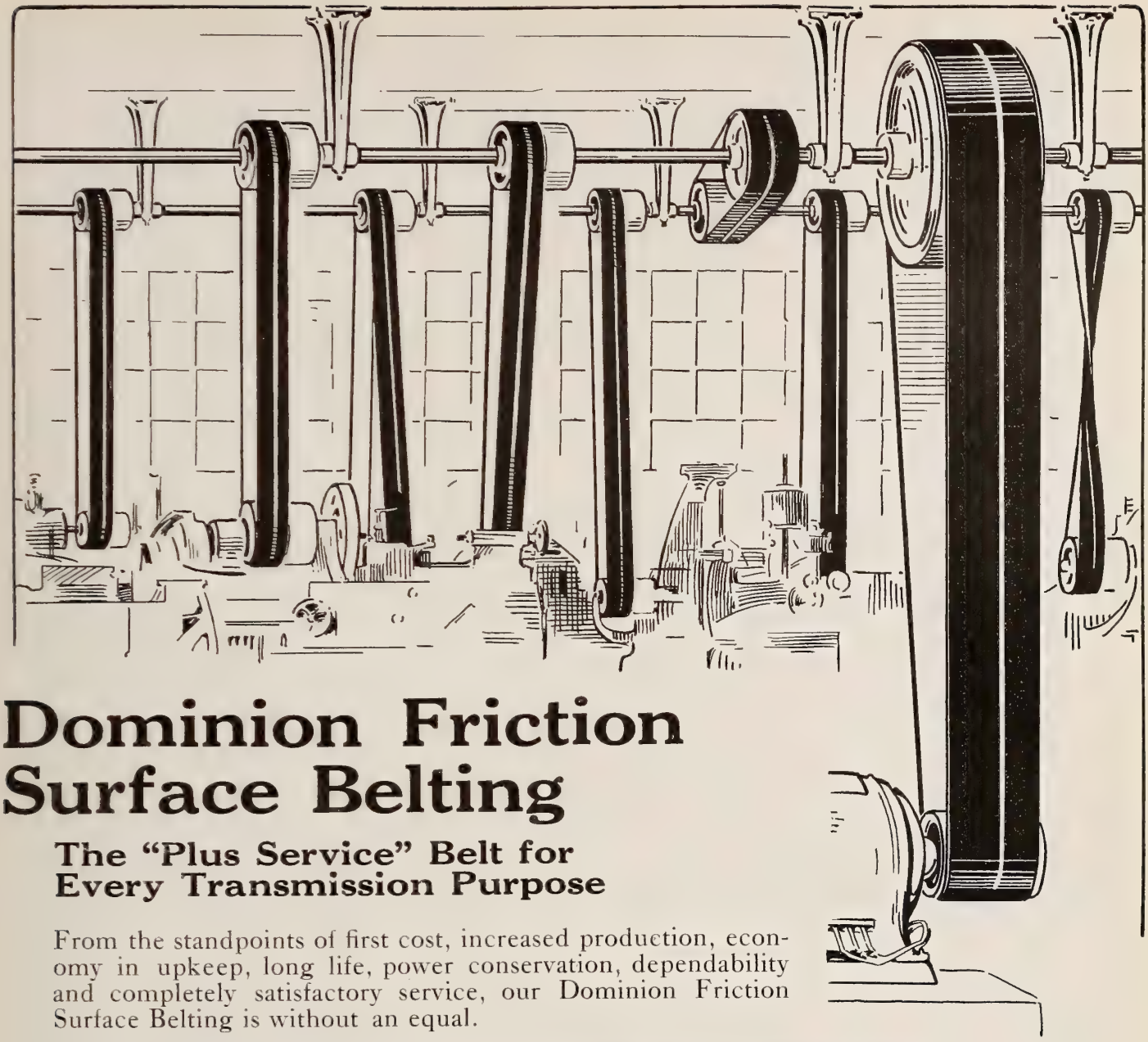


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The "Plus Service" Belt for Every Transmission Purpose

From the standpoints of first cost, increased production, economy in upkeep, long life, power conservation, dependability and completely satisfactory service, our Dominion Friction Surface Belting is without an equal.

Dominion Friction Surface Belting is more than layers of rubberized fabric cemented together—**it is better belting**—built to insure absolute uniformity, dependability and a "plus service" according to the high standard of the Dominion Rubber System.

It is the product of over fifty years' research and experience in belt-making by the largest rubber organization in Canada.

In the same ratio that Dominion Friction Surface Belting renders a "plus service," at minimum cost, does the Dominion Rubber System render a special belting service at no cost.

Canada's largest manufacturers have made our technical experts responsible for efficient belting service in their plants—**and find it profitable—possibly we can be of service to you in like manner.**

Our Dominion-wide service—in charge of belting engineers—**not merely salesmen**—is within phone call of your plant. The first time you are in trouble—**test it out.**

Service Branches:	**Halifax,**	**St. John,**	**Quebec,**	**Montreal,**
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CANADIAN CONSOLIDATED RUBBER CO., LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES

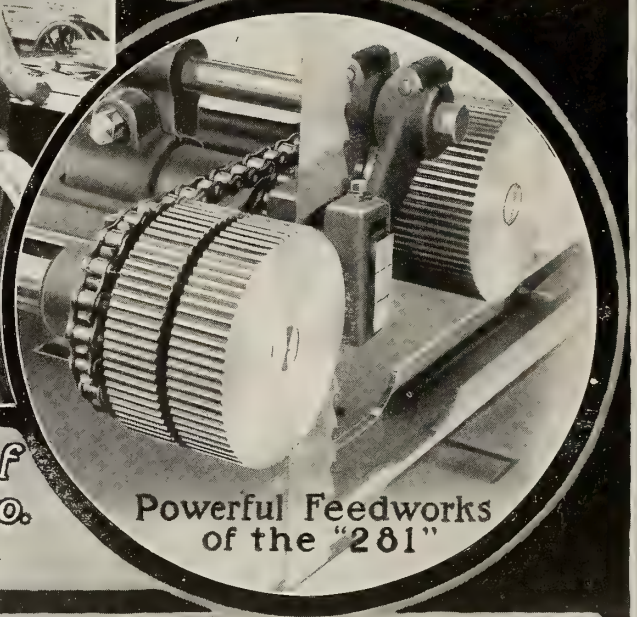
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Yates

No. 281 Band Rip Saw



As Installed in the Plant of the Sawyer-Goodman Co. Marinette, Wis.



Powerful Feedworks of the "281"

The "Rip" with a "Rep"

Since the "281" was first built, 15 years ago, it has earned an enviable reputation as a band rip saw of exceptional durability and efficiency. The powerful feedworks, shown in section above, is but one of this machine's many strong features. It will stand up to the heaviest ripping at feeds up to 300 per minute.

Send to-day for our Illustrated Circular on this machine and convince yourself as to its reputable excellence.

P. B. Yates Machine Co. Ltd.

Hamilton, Ont., Canada

U. S. Plant, BELOIT, Wis.

"The Invariable Choice of the Man Who Knows"

C.M.C.

26" CRANK SHAPER

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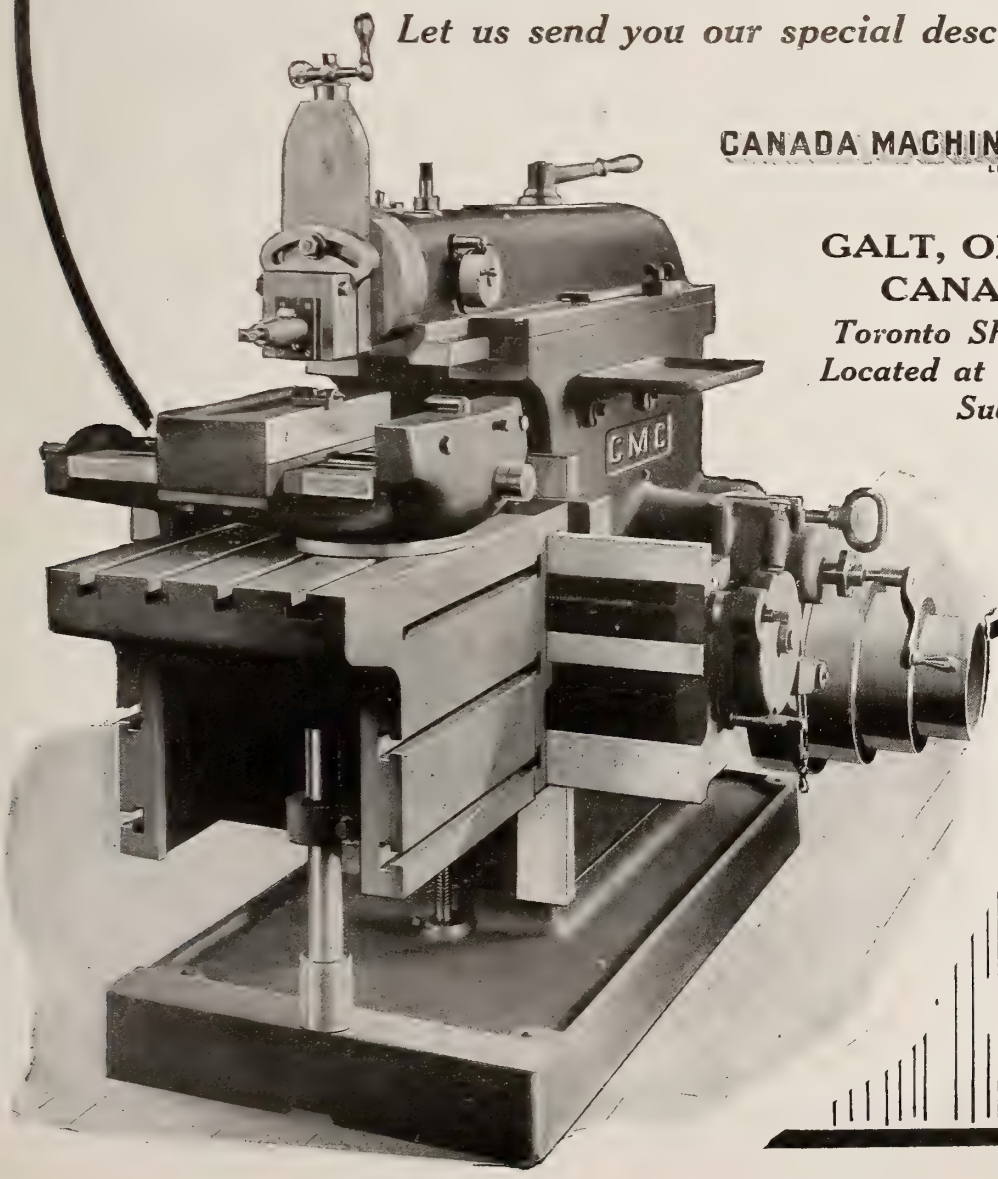
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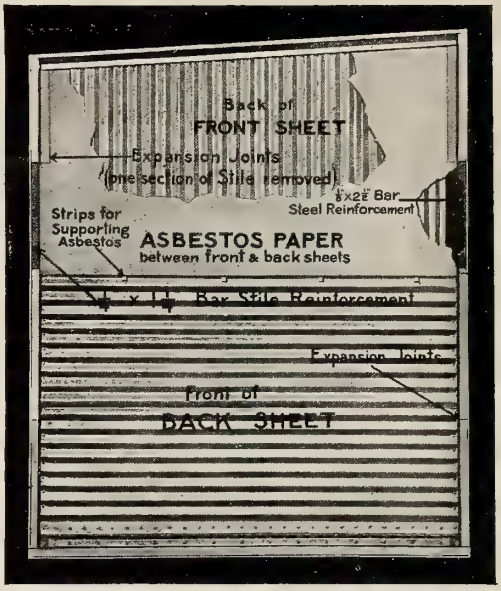
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It cannot burn. It will not transmit heat. It will not warp or rust. Under all conditions, in structures of every type it does the work expected of it with absolute dependability.

It is made in a variety of styles and sizes to suit various conditions, and special designs can be made according to any engineer's specifications.

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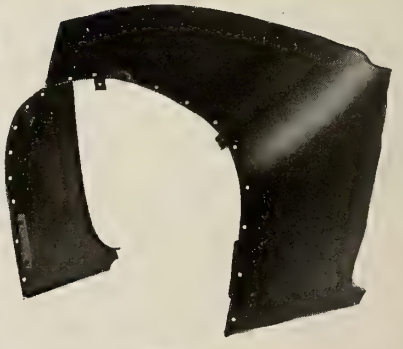
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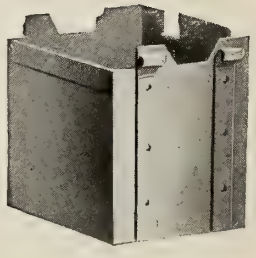
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HEADQUARTERS FOR

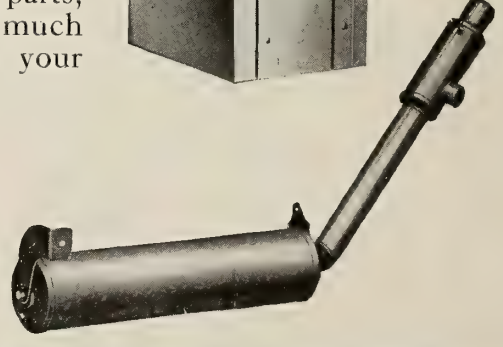
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The right kind of valve is one that is adapted to your particular service. Different services under different conditions necessitate different types of valves. Don't guess. Consult us. When MUELLER valves are installed under our supervision we fully warrant them to control the service for which they are recommended. We make valves for water, steam, gas, air, oil and ammonia.

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Patterns of All Kinds



Castings of Iron and Brass

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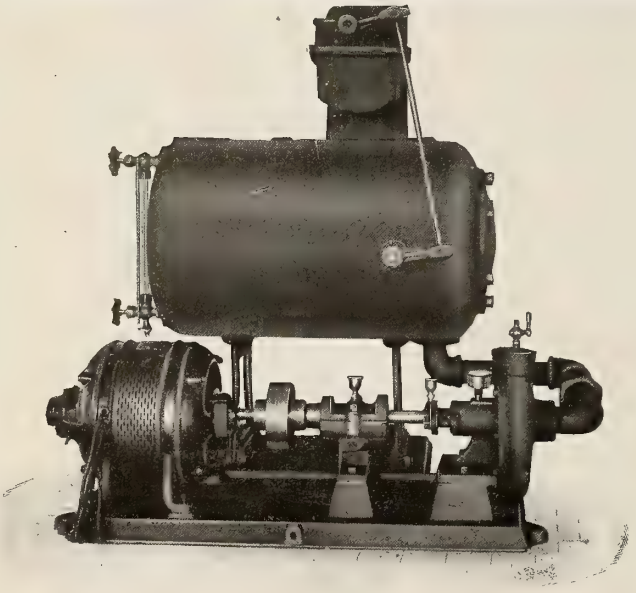
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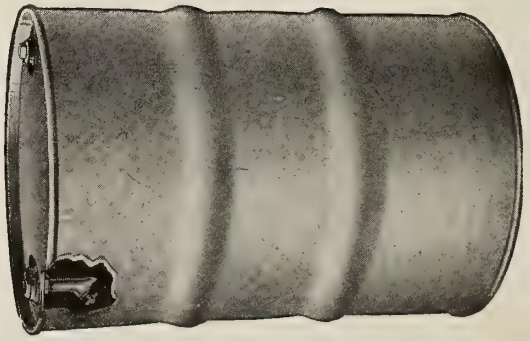
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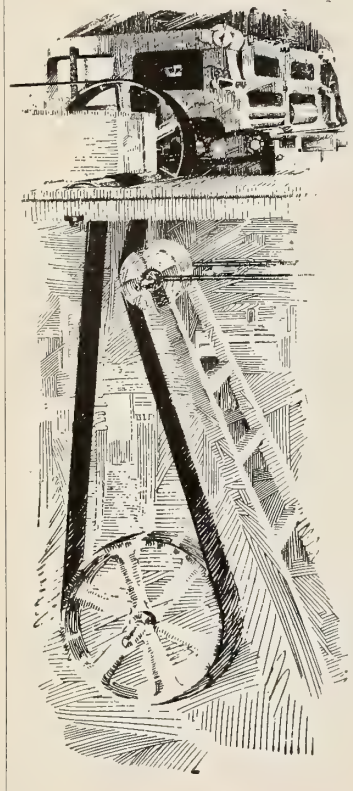
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"Extra Power" in Splendid Shape After Three Years of Use

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CORRECT LUBRICATION PAYS DIVIDENDS

YOUR power plant must be properly lubricated if it is to give you economical, efficient service. Correct lubrication pays dividends in the form of larger, steadier output and bigger profits. Maximum output is of vital importance in every industry. Correct lubrication is therefore a sound business necessity.

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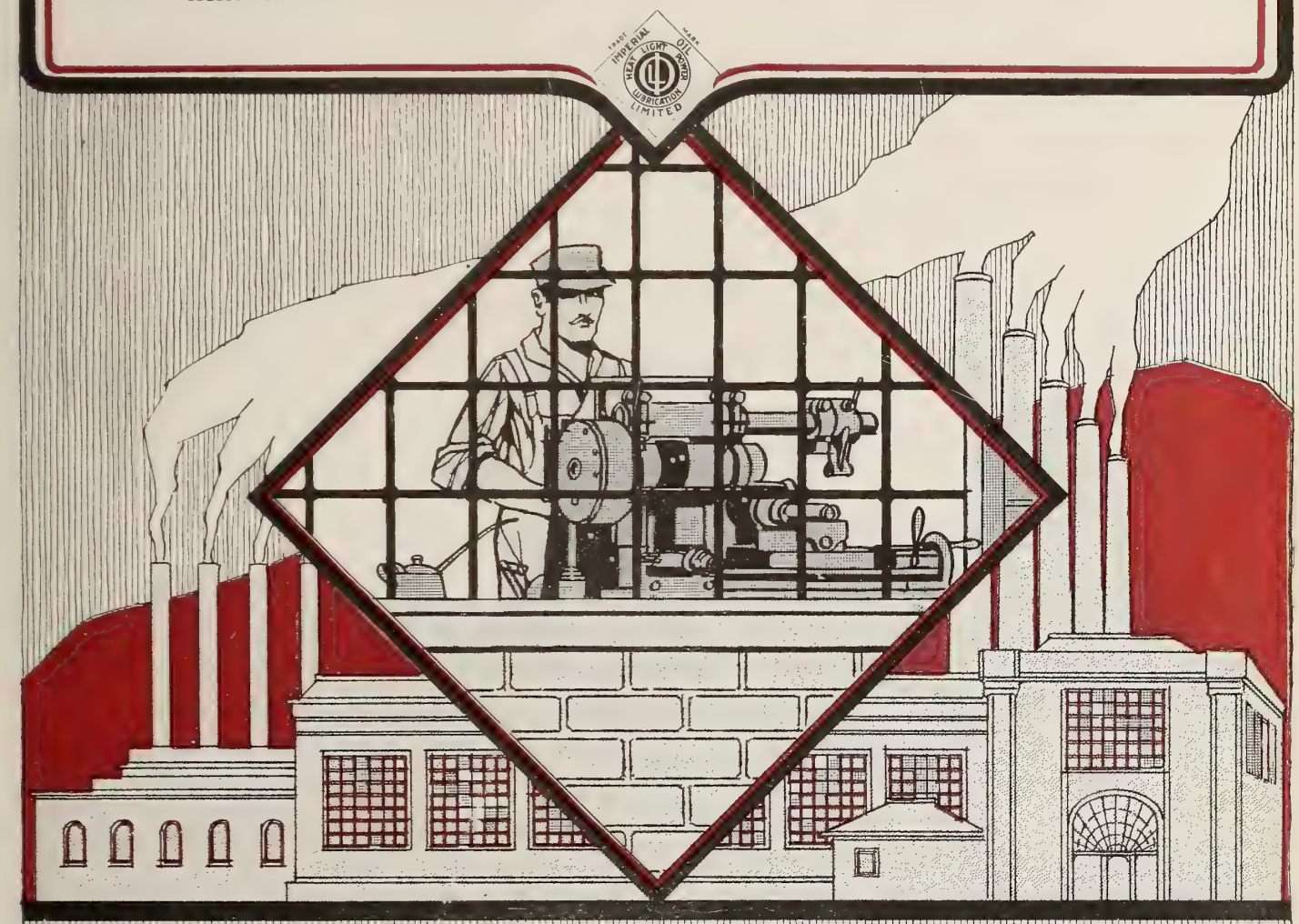
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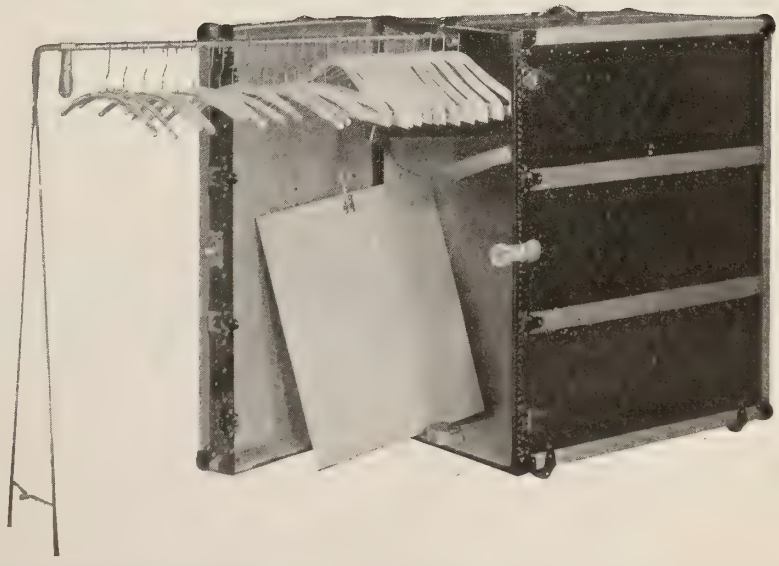
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AND CASES
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AND

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Works at St. John's, P.Q.

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No.	H.P.	Phase.	Speed.	Volts.	Cycles.	Starter.	Make.
1....	15	3	1500	550	25	Yes	T.H.E.
1....	50	3	750	550	25	Yes	Can. Gen. Elec.
1....	60	3	750	550	25	Yes	Crocker Wheeler
2....	50	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	C.G.E.
1....	10	3	1500	220	25	Yes	T.H.E.
1....	3	3	1500	220	25	Yes	Westinghouse CCL
1....	½	1	1800	110	60	No	Fort Wayne
1....	¼	1	1800	110	60	No	Westinghouse
1....	¼	1	1800	110	60	No	Fisher
1....	40	2	900	220	60	Yes	Fuller Wenstrom
1....	15	2	1800	220	60	No	T.H.E.
2....	5	2 or 3	1800	...	60	No	West. CCL rewound
2....	1	2 or 3	1800	...	60	No	West. CCL rewound
1....	½	2	1800	220	60	No	Westinghouse CCL
2....	10	2 or 3	1200	...	60	No	West. CCL rewound
1....	5	..	1200	220	60	No	Union (New)
2....	3	3	1800	220	60	No	C.G.E. rewound
4....	7½	3	1800	220	60	Yes	Lincoln

TRANSFORMERS

1.... 40 K.W. Type R 2200-220 volts. Packard

PLATER

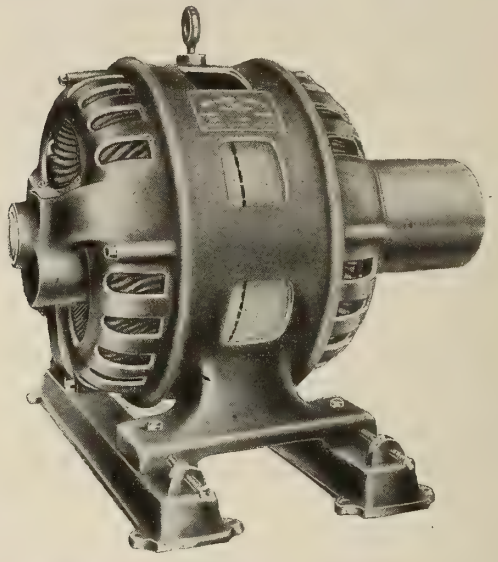
1.... Type C Ostrander Seymour 6 volt—speed 750—amp. 800

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Jones & Moore Electric Co. Limited

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or

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In Northern Ontario

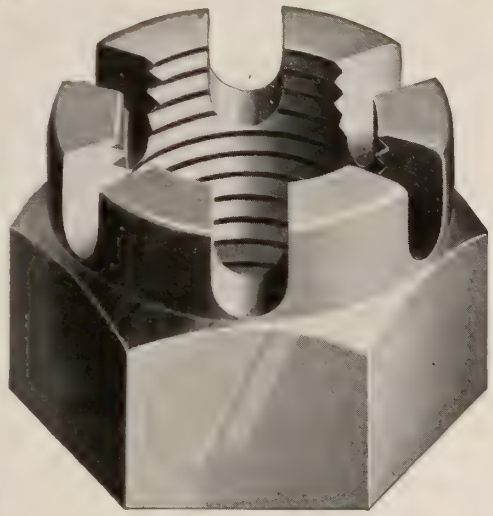
The Lake Superior Corporation and Algoma Eastern Railway Company are open to negotiate for the disposal of certain lands

APPROXIMATELY 682,000 ACRES

situated for the most part in that section of Northern Ontario known as the Clay Belt, and comprising the Townships of Storey, Langemarck, Dowsley, Nassau, Shetland, Staunton, Orkney, Magladery, Caithness, Rykert, Doherty, Whigham, Coppell, Newton, Dale, McOwen, Frater.

The lands in question are accessible to the Algoma Central, Trans-Continental, Canadian Northern, and Canadian Pacific Railways, and should be of particular interest to pulp and paper makers, also to settlers, in view of their agricultural possibilities.

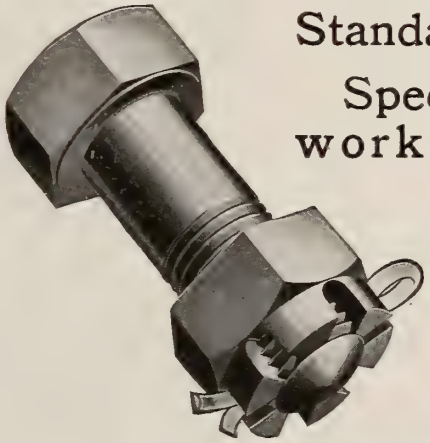
General information will be furnished and plans exhibited at the office of Mr. Alex. Taylor, secretary of the Lake Superior Corporation, 1428 Bank of Hamilton Building, Toronto, or at the office of Mr. G. A. Montgomery, vice-president of the Algoma Eastern Railway Company Sault Ste. Marie, Ont.



Castellated Nuts

Cap and Set Screws

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Special screw machine work made to specifications from Iron, Steel and Brass Bars in sizes up to 2¼" and 10½" long.

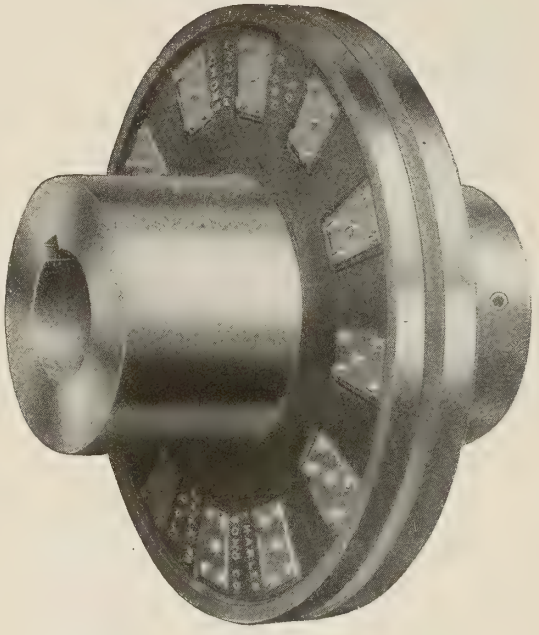
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Patent Flexible Insulated Coupling



CONSTRUCTED of three pieces only, the two outer flanges being of cast iron, and the centre disc of non-conducting material, with lugs on each side for transmitting the power to the outside flanges.

Specially adapted for connecting motors to Pumps, Machine Tools, Sewing Machines, Wood-working Machinery, Printing Machinery, Fans, Blowers, etc.

Can be run in either direction; is close connected; easy of access; practically no repairs.

Will transmit more horse power than any other flexible coupling of equal diameter.

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LITHOGRAPHED AND PLAIN



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145 Spadina Avenue
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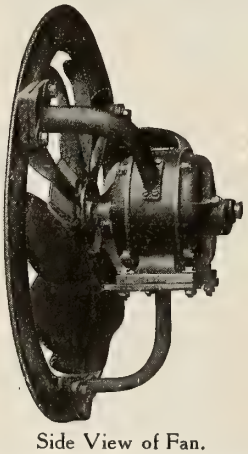
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Westinghouse

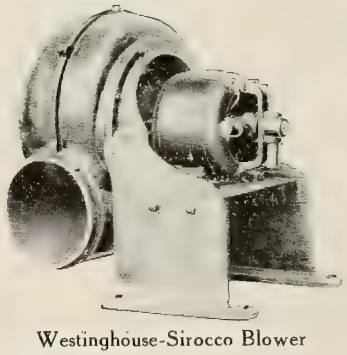
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INDUSTRIAL CANADA

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The CANADIAN MANUFACTURERS ASSOCIATION.

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Position of the C.M.A. on Reconstruction

An Address Delivered before the People's Forum of Toronto on the Attitude of the Association Towards Problems of the Day

By JOHN S. McKINNON

Second Vice-President, Canadian Manufacturers Association

WE are all thoroughly interested in the unrest which is plainly evident in Canada to-day. The unrest in Canada is only part of the unrest which is in all other countries—in fact we have probably less in Canada than any other country in the world.

The chief cause of this unrest is undoubtedly uncertainty as to the future. Men are asking themselves: "How am I going to maintain my family and myself during the next year?" It is only natural that when men are agitated by such an important question, which may involve the welfare of not only themselves but of those dependent on them, they should be unsettled and fearful until they have some assurance that they will be able to make a living.

The Work to be Done

The war came upon Canada suddenly. We had no preparation. We had to raise an army of half a million, maintain it, and at the same time attack the difficult problem of making munitions of war. All this resulted in a great dislocation of the normal work of the country. The armistice came on November 11th unexpectedly. Few people thought the war would end so suddenly. This was the proposition we were faced with in Canada. We had over three hundred thousand people working on munitions. The Canadian army had about four hundred thousand men still in uniform. Beyond this, we had the normal industrial population of peace time not included in the above.

The problem of supplying employment quickly for such a vast number is one of the greatest Canada has ever faced.

The manufacture of munitions, of course, had to stop at once. There was no use using steel and other expensive and valuable articles in making shells, and in employing labor at high prices to make these shells which nobody wanted any longer. We could sell none of them. Consequently we could not go on making them.

The surprising feature of the whole situation is not that there is so much unemployment, but that there is so little, when the whole problem is considered.

I believe that the future is promising; that if we can get through the next few months, a definite improvement will be evident all through Canada.

I wish now to consider what factors will contribute to this improvement. To do this, we must compare the situation to-day with the situation in 1914, previous to the outbreak of war. What work is there to be done in Canada, and what labor have we to do it with?

1. There has been little peace construction work since 1914. The country has got along by patching and repairing. In many lines of construction we are five years behind. It is gratifying to note that the various governments are announcing extensive programmes of building and construction which will employ many thousands of men. But beyond all this, there are thousands of smaller contracts throughout the country which must soon be started. We shall probably not hear much about those, but they will be gradually absorbing and usefully employing surplus labor.

2. We have to feed, clothe, house and transport the Canadian people in 1919 just the same as in 1914. In other words, the normal labor demands of peace are returning.

3. But we should not be satisfied with the normal of 1914. We must provide for growth, which means still more work. We hope to develop export trade which will result in more employment.

What Labor is Available

This is the work we have to do now. What labor have we available to do it with?

1. For five years there has been practically no immigration from Europe. During the last year before the war our immigration was 402,432. That stream has been cut off for five years. Even if the people of Europe are allowed to leave their country, it is probable that the Dominion Government will be very careful about admitting too many immigrants.

2. It is certain that during the first two years of the war many thousands of aliens escaped through the United States to rejoin armies of their own countries. This meant a still further decrease in our labor supply. These will not be allowed to return.

3. The Government has announced that there are thousands of aliens in Canada to-day who are anxious to return to Europe as soon as they can get passage on ships. The chief reason they cannot get passage now is that ships sailing from Canada land at British ports, and the British people do not want aliens any more than we want them ourselves. When sailings are resumed to European ports

there is no doubt that our labor supply will be still further decreased.

4. Sixty thousand Canadian soldiers were killed in the war, and nearly two hundred thousand more were wounded. It is probable that half these wounded men will not be able to work for some time. With all this drain upon the normal labor supply of Canada, and with no new labor coming in, it is obvious that if the business of the country can continue at or above the normal of 1914, there should be no difficulty about surplus labor in a very short time. The labor supply is like a river. During the war it flowed in a certain channel. The end of the war changed the channel. Until the new channel is cut there will be some flooding at the point of diversion. But no person who believes in the future of Canada and who remembers that prior to the war our continual cry was for more population and more immigration can have anything but confidence that as soon as the period of re-adjustment is over, there will be work enough for all. The important question at once arises: How long will this period of re-adjustment be? I will not venture to answer that question definitely, but I would like to point out that the winter is almost over and that spring and summer will see a great improvement in the labor situation.

United Effort Required

To get through this period of re-adjustment which involves a certain amount of commercial depression and uncertainty, it is of the most importance that there should be united effort by all sections of the country. Manufacturers, farmers, workmen, bankers, transportation companies, wholesale and retail companies and private citizens must work steadily, and must shape all their actions toward a common object. And that object is to restore Canada safely and prosperously to a peace basis.

There has been a great deal of criticism directed against manufacturers, and they have been called a variety of hard names. This may not be so bad as it appears, because men who do things unavoidably arouse criticism unfavorable as well as favorable. Without any intention of appearing to give manufacturers more credit than any other class of the community, I would like to point out some of the things which the manufacturers have done and are doing. I do this because as a manufacturer myself I know many of their problems intimately, and can speak in regard to them, whereas I cannot speak in regard to the problems of the farmers or of other bodies. During the war the manufacturers had to master the great problem of making munitions. This was entirely new work. They had to find out how to make shells. They had to get the machinery and learn how to use it. They had to build plants to house their operations. They had to secure help when the army was making most insistent demands for recruiting. They had to find money to finance their contracts. If they had failed, the country would have been in financial depression while the war was on, but they did not fail. The factories of Canada manufactured for the Imperial Munitions Board munitions to the value of one billion two hundred millions, and were working on 250 contracts for the United States Government when the armistice was declared. The manufacturers of Canada employed about seven hundred thousand people in 1918, and were exporting manufactured goods to the value of seven hundred million dollars annually.

A few people seem to think that the manufacturers got all this money themselves, which would mean that they paid their workers nothing, that they paid no interests on the money they borrowed, that they were presented with the raw materials, and that the railways carried their goods for nothing. The term "Profiteers" has been applied to manufacturers generally without discrimination. In the making of munitions, manufacturers can be crowded into three classes.

(1) A few who made good profits, largely as a result of their own enterprise and ability. It must not be forgotten, however, that the Dominion Government Excess Profits Tax took away all profits above 11 per cent., and that this tax has already secured from business men $65,000,000.

(2) The class of manufacturers who came below the 11 per cent. and made an average profit.

(3) The class of manufacturers, of whom there were not very many, who did not succeed in making any profits and instead suffered losses.

In dealing with the munition industry, it is worth while remembering that when profits are considered you must also consider that before a manufacturer can begin making munitions he has to make extensive changes in his plant, or perhaps take a new one and buy machinery, which would be of no use to him in peace time production. Now that the war is over, these plants may not be available for peace manufacturing and the machinery is on the manufacturers' hands. But the chief points to remember in regard to munition making were that the manufacturers and their employees succeeded in making the proper kind of munitions, and even got so far as, for example, to be able to manufacture 55 per cent. of the shrapnel shells used in the British Army, and that they gave employment to 300,000 people and their families, and that out of this immense amount of money brought into Canada, which was distributed throughout all classes of the community, will come a great deal of the revenue which will be necessary to pay our war debts.

The factories also provided a great portion, probably half, of the entire Canadian Army. The factories also did a great share in the work of subscribing to victory lonas, war loans, patriotic funds, and other funds.

The Question of Employment

In regard to the employment situation, it would be a mistake to think that the manufacturers of Canada have only recently begun to deal with this problem. The manufacturers began to consider the question of unemployment after the war when their men began to enlist in 1914, because it was in 1914 that the manufacturers began to promise their men who enlisted that their positions would be retained for them, and these promises are being generally carried out. There are cases where a manufacturer who had a plant in 1914 has none now, consequently he cannot hire anybody.

The policy of the Canadian Manufacturers' Association has been to co-operate with the various organizations of the returned soldiers since their formation. In Toronto there has been for some time a central commtitee representing the Toronto Branch of the Canadian Manufacturers' Association and the Great War Veterans' Association. This committee meets from time to time and exchanges ideas and makes plans to furnish the maximum amount of work for returned men. The manufacturers are now being supplied almost exclusively by the various chain of employment offices which have been established by the Dominion Government from coast to coast. Many problems arise in finding work for applicants, but so far as they can be solved, they are being solved.

The chief thing for us to remember now is that during the period of re-adjustment we must all work together, exercise patience, try to see other people's points of view, and if we do this it is reasonably certain that Canada will quickly regain her former prosperity.



—*New York Times Magazine.*

In the Same Boat

Capital: "If you destroy the boat, you go down with me."

Editorial Comment

"DURING the last eighteen years, including the war period, the earnings of Armour & Company on the actual investment and appraised value of the business averaged 8.9 on everything, including all our by-products and associated lines and also all our business. If what the Federal Trade Commission says is unrelated to the packing industry, our profits represented less than nine cents annually on each dollar invested in our business."

The above is an extract from the testimony of J. Ogden Armour, representing Armour & Company, on January 21, 1919, before the Committee on Interstate and Foreign Commerce of the United States.

Mr. Armour's testimony was supported by facts compiled from business records of the company and was given to contradict the extravagant and untrue statements which had been made in regard to the profits made by the packing industry in the United States.

British Columbia and the Tariff

BRITISH COLUMBIA is protectionist and the Vancouver *Sun* points out the reason to the Western Provinces. The *Sun* says that if British Columbia framed a tariff in her own interests she would put bread, meat, clothing, machinery and fishing equipment on the free list, but British Columbia looks farther than her own immediate welfare. She regards herself as a part of Canada and believes that her future prosperity will be secured if Canada develops as a nation and the needs of the community and sections of the country are subordinated to the good of the whole country. The *Sun* also reminds the Prairie Provinces that they should not forget that they are finding a growing market for their dairy, poultry and meat products in British Columbia, all of which enjoy a measure of protection under the tariff. Some day British Columbia will be a great manufacturing province, and when the grain growers of the West are forced to take up mixed farming to revive an exhausted soil they will be glad to sell their farm produce to the factory workers of British Columbia.

Union With the West Indies

AGITATION seems to be developing in the British West Indies for closer reunion with Canada. It seems clear that they want commercial union, but on the question of political union there is a division of opinion. It is pointed out that the United States, by possessing a tropical belt within their own boundaries have an advantage over Canada industrially, and it is argued that the West Indies could supply what our climate has denied us.

Manufacturers and Employers

MANUFACTURERS in all parts of Canada are forming joint advisory committees with their employees. They believe that these standing committees can investigate and remove grievances before these grievances become subjects of conflict. The manufacturers are giving their employees information in regard to the difficulties and problems of manufacturing. They tell their employees something about the cost of production and what competition they are facing. They listen to the employees' view in regard to wages and hours of labor. The reasonable men among the labor union readily grasp the fundamental principle that if costs of production rise above a certain point, export trade will be eliminated and production at home will be decreased with the result that the amount of work available will diminish. The trouble is with the extreme element who, preferring theories to facts, will not listen to reason, but on the whole much good has resulted from this common discussion.

Sir Edmund Walker's View on the Tariff

SIR EDMUND WALKER, President of the Canadian Bank of Commerce, writing in the *Montreal Star* on February 15, 1919, discussing Canada's fiscal policy says:

"The war has destroyed many illusions. One of them is the folly of relying on other countries for some commodity necessary to existence as a nation, which by an extra effort it could provide for itself; and another is the folly of buying foreign goods of any kind, whether imperatively necessary or a mere luxury, if we can avoid it. We have learned that we can trade with each other to an almost unlimited extent while we settle in our own money, but that every dollar's worth we buy abroad means not only that a dollar's worth of work has been diverted from a Canadian workman, but that we may have a national position where it is impossible to provide the dollar in international money. We see a vivid example of this at the moment. Great Britain has been the example on which the arguments against a policy of protecting manufacturers have rested, yet Great Britain has apparently determined never again, merely because of the cost in money, to be at the mercy of other nations for materials necessary to the nation's safety. She also does not hesitate

MAKING CIRCLES

The war ends.
A shell-plant decides to make hair-pins, but cannot change all its machinery overnight.
Many men are temporarily thrown out of work.
Demobilized soldiers cannot at once find work. Some of them are unfitted by war for their former jobs. It takes time and thought to find places for them.
Meanwhile the unemployed talk.
The unemployable talk.
Professional agitators talk.
The more asinine the talk, the bigger the headlines in some newspapers, and the more distinct the impression made on the unthinking.
The talk is discontented, and it rouses discontent.
The talk is of strikes, sympathetic strikes, a general strike, of seizing by force the property of others.
What happens then?
Men who have capital to invest won't risk it.
They will not build the house they planned.
They refuse to bid on the contract that is offered.
They decide to buy Omaha debentures or Brazil Power.
The money that should have been set to work in Canada gets busy in Omaha or Brazil.
The result?
Canadian lime-kilns lose an order.
Canadian nail machines slow down.
Canadian planing-mills lay off men.
More men are unemployed.
More talk ensues.
More capital is tied up.
And so the circle goes, round and round.
The cause?
Too much talk.
The remedy?
Let Labor and Capital trust one another.

—*Toronto Daily News.*

to put a temporary embargo upon the importation of goods manufactured in other countries, for the very sound reason that whatever some individuals may be able to do, she, as a nation, cannot afford to pay for such goods. This is a condition always more or less true of Canada and to which the writer has continually drawn attention. Perhaps more certainly still, Great Britain has learned that she cannot afford to buy our wheat and foodstuffs, generally, merely because we can produce them cheaper than she can. She is looking keenly at her untilled acres, and she may do things as far as possible from free markets in order to raise a larger share of her food supply at home. Should such a course be followed we shall learn very quickly the value of that industrial development which secures a market for the products of the farm in Canada.

"The writer is not a believer in that kind of tariff which enables manufacturers to prosper in Canada without feeling the competition of foreign manufacturers, but he urges the necessity of sufficient protection to enable manufacturers in Canada to compete. Without some measure of protection several new fields of manufacture made possible otherwise by our experience during the war, will still be impossible."

Sir Edmund Walker's annual review of Canadian conditions is a document which is widely read by all classes. He has been a life-long student of Canadian conditions. He speaks strongly in the above statement and his words should receive attention at this critical time.

Protection in Great Britain and France

ON March 1st Great Britain barred practically all manufactured goods, except those imported under special licenses, which are difficult to obtain. The purpose of this legislation is to provide work for the demobilizing British army and war workers.

Similar action has been taken by France. This prohibition constitutes not merely a moderate degree of protection, but almost complete protection.

We have the same problem in Canada, yet the industries are not so highly protected. Exclusive of the special war tariff levied generally on imports, both dutiable and free, by the Government for the purpose of raising war revenue, the Canadian customs tariff in the year 1918 imposed an average rate of only 21.2/5 per cent. on dutiable goods coming into Canada. While other countries are building up their protection in order to give employment to their people, it seems suicidal to urge that there should be sweeping tariff reductions in Canada now.

Increased Protection For South Africa

THE Acting Prime Minister of South Africa states that his Government has introduced his Advisory Committee to draft a new tariff of customs duties which would enable South African industries to keep their heads above water and prevent the Union becoming a dumping ground for the manufacturers of other countries. He pointed out that the present tariff of South Africa had been framed with a view to producing revenue only. This is another instance of the tendencies, which are so marked in such countries as Great Britain and France, to afford their own manufacturers a wide measure of protection during the period of reconstruction.

Wall Street View of Canadian Tariff Reduction

THE United States has witnessed many "farmers movements." Wall Street has also weathered many tariff reductions and free trade gales. Wall Street knows that free trade is as dangerous for Canada as it is for the United States.

Both the United States and Canada, operating under very similar conditions, have adhered to the policy of protection, the difference being that the United States, under Republican Governments, maintained a much higher tariff than any maintained in Canada. The following extract from the *Wall Street Journal* deals with the present Canadian tariff agitation:

"Tariff agitation is once more a Canadian diversion. Part of the old Liberal group maintains free trade is an inherent principle of life. Another large part insists Sir Wilfrid Laurier took refuge from the theories of extremists in a highly protective tariff; just as did the Democratic party, with a Wilson as chairman of the House Ways and Means Committee.

Each faction of the Liberal Party expects reinforcements from the farmer vote of the provinces which produce Canada's basic exports. Farmers' organizations with aggregate membership of forty thousand prosperous land owners have been given a large share in the Union Gov-

ernment, which for the duration of the war at least marked the coalition of Canada's most impressive manufacturing, producing, financial and transportation interests.

"New markets in the States, with a next-door neighbor whose demands are inexhaustible," does give the Western tariff reformer standing with Western farmers. The "new markets" are bound to come, tariff or no tariff. They are here now. Canadian private interests with American private interests, and American private interests with Canadian private interests, would perhaps be less affected by radical changes in the tariff, and therefore in the fiscal and financial policy of Canada, than the farmers themselves.

With a billion and a half public debt and within thirteen thousand miles of railroad operation pensioned for keeps, Canada would have to replace tariff with heavy domestic taxation. With lowered cost of farm equipment, of wages, of goods and clothing, the farmers would have to readjust the prices of his products downward; he would have in the infancy of his country's development to sacrifice a degree of virility which high standards alone give him. Not all the farmers who will ever dwell between the Great Lakes and the farthest Northwest could cooperate that economic result out of the verities of the future.

But then, like other people, the farmers have level-headed successful business leaders who know very well that in new countries at least there must be a good home market before there can be any good foreign market. And there are more than likely to act accordingly."

United States Revenue

THE Bill to provide additional revenue for the United States is now before the House of Representatives. The United States is like all other countries. It is forced to provide ways and means of providing more revenue. They have a protective tariff but we hear no suggestions in the United States, as we hear in Canada, that the tariff should be greatly reduced. The United States depends on the tariff for the collection of revenue and cannot afford to eliminate or weaken this machinery for securing money. In addition to maintaining the tariff, the Bill proposes to increase the income tax and to levy a surtax on incomes between $5,000 and $1,000,000. The surtax on on incomes of $5,000 is 1 per cent., the surtax on incomes $1,000,000 is 65 per cent. The Bill also provides for an estate tax which will claim 1 per cent. of a net estate below $50,000 and runs up to 25 per cent. of a net estate amounting to $1,000,000.

They are also providing for taxation on transportation, which includes tax on tickets, berths, telegraphs, telegrams, telephones and cables. There is also a proposed tax on insurance of 8 cents on each $100 for life insurance, one cent on each dollar for marine, inland and fire insurance and one cent on each dollar for casualty insurance. There is also a tax recommended on cigars, tobaccos and manufactures thereof, which is fairly heavy. For example, the tax proposed on cigars manufactured or imported to retail at between 15 and 20 cents each is $12 per thousand.

There is another proposed tax on admission into theatres, and other places of amusement.

LET US AVOID MAKING HASTY CONCLUSIONS

Both in Canada and the United States there has been too hasty an assumption that the readjustment period must of necessity be a time of depression. To counteract this opinion the Committee on Readjustments of the National Association of Manufacturers has expressed the following conclusions:

1. It is our opinion there exists a well-defined attempt to create in the minds of the public and of business men of the United States the impression we are to experience in the near future an unheard of cessation of industry. Such an impression, we believe, is not in accordance with the facts.
2. It is our opinion the factories and stores of the United States are at present almost depleted of their normal stocks and that our country is on the threshold of a most unprecedented business expansion owing to this domestic condition.
3. We are of the opinion that the developments of export trade will naturally follow the prestige gained by the United States of America in the markets of the world and that it is the duty of all manufacturers to foster and encourage such expansion of export business as may be normally and healthfully developed.
4. We believe it is not a time to become hysterical over the conditions, but on the contrary a time for watchful, sober consideration of developments as they arise to the end that readjustments may come about with as little disturbance as possible.
5. In view of the above, we caution all manufacturers against hasty action or conclusions in reference to employment questions, believing as we do that the normal demands of industry will supply work for all those now employed, as well as the thousands of returning soldiers and sailors who will be returned into industry.

Exeise taxes are fairly heavy. The Act states, "There should be levied, assessed, collected and paid upon the following articles sold or leased by the manufacturer, producer or importer a tax equivalent to the following percentage of price for which so sold or leased—automobiles, trucks and waggons, 3 per cent.; automobiles and motorcycles, 5 per cent.; pianos, etc., 5 per cent.; sporting goods, 10 per cent.; chewing gum, 3 per cent.; cameras, 10 per cent.; cigar and cigarette holders, pipes and smokers accessories, 10 per cent.; yachts and motor boats, 10 per cent.; toilet soaps, 3 per cent.; paintings, statuary, sculptury and picture frames, 10 per cent. There are also special taxes on corporations, brokers, pawn brokers, theatres, museums, concert halls, circuses, etc.

There is also a special levy on business in the form of stamp taxes and a tax on the employment of child labor.

An analysis of the above revenue bill shows that the United States is building up a huge taxing machinery which is designed to reach out and secure revenue from all classes of the community. The whole tendency of the taxation is to tax the rich and well-to-do. The business taxes appear to be very heavy, and the effect of their operation on the industrial life of the country remains to be seen.

News and Views of the Association

There will be found each month in this department a record of the various activities of the Canadian Manufacturers Association during the preceding month. The information is supplied to INDUSTRIAL CANADA officially, and all members of the Association are urged to acquire the habit of reading and checking over the contents of the department carefully in order to keep themselves posted on the work of the Association

Executive Council Meeting

The Executive Council held its regular meeting at the head office in Toronto on February 27th, Mr. J. S. McKinnon, Second Vice-President, presided in the absence of the President and First Vice-President.

The Executive Council will hold its next meeting in Montreal on March 27th. As there are many important matters to discuss, a full attendance is especially requested.

Sir Wilfred Laurier's Funeral

Mr. G. M. Murray, Ottawa Commissioner, attended the funeral of the late Sir Wifrid Laurier as the official representative of the Association.

Resolutions—Maritime Branch

The Council considered a number of resolutions which were adopted at the Convention of the Maritime Provinces Branch, and which contained much valuable material. A number of these resolutions are already the subject of action.

New Members

At the meeting of the Membership Committee on February 17th, thirty-one new members were taken into the Association and four resignations were accepted.

New Sections

The following new sections have been approved by the Association: Shoe Manufacturers of Canada Section; The Ready Cut House Section; The Asphalt Roofers Section.

Labour Appeal Board

Mr. H. I. Thomas will continue to act as a member of the Labor Appeal Board.

British Columbia Branch

The manufacturers of the City of Vancouver and Vancouver Island are considering the advisability of forming a sub-branch of the Association.

Col. Carnegie's Speech

The speech recently delivered in Toronto by Colonel Carnegie of the Imperial Munitions Board on "Iron and Steel" has been reprinted and is now available for distribution to interested members of the Association.

Brantford Branch

The manufacturers of Brantford have formed the Brantford Branch of the Association, which has been approved by the Executive Council. The officers are: C. A. Watrous, Chairman; W. H. Whitaker, Vice-Chairman; Geo. Hately, Acting Secretary.

Sherbrooke Branch

The manufacturers of Sherbrooke have formed a branch of the Association. The officers are as follows: A. M. Sangster, Chairman; Ezra Diman, Vice-Chairman; Geo. D. McKinnon, Secy.-Treasurer.

Ottawa Office

The Ottawa offices of the Association have been opened at Nos. 215-217 Booth Building, Ottawa, and Mr. G. M. Murray, formerly General Secretary, is in charge, and Mr. E. Blake Robertson, formerly Assistant Superintendent of Immigration, has been engaged as assistant.

New Branches

Upon a report by the Membership Committee, it has been decided to endeavor to organize branches in the following cities: Ottawa, London, Peterboro, Windsor, Owen Sound, and to endeavor to organize the manufacturers of Galt, Hespeler, Kitchener and Waterloo into one branch.

Upon an application from the members of Brantford to organize the Brantford Branch of the Canadian Manufacturers Association, approval was accordingly given.

Luncheon at Saskatoon

At a luncheon held on February 13th by the Saskatoon Section of the Prairie Provinces Branch, T. M. Molloy, Secretary of the Labor Bureau for the Province of Saskatchewan, outlined the scope of the organization which has been provided to deal with the problem of unemployment throughout the Dominion.

Patent and Copyright Legislation

In view of the proposed introduction at the forthcoming session of the Dominion Parliament of a bill in reference to patent and copyright legislation, application has been made to the Acting Minister of Trade and Commerce, suggesting a meeting in Toronto with officers of the Patent Office, patent attorneys and manufacturers interested in this matter, which, it is expected, will be held at an early date. In the meantime, information is being collected for submission to the Department.

Co-operation With Labor

The manufacturers throughout Canada are organizing joint committees with labor representatives. These joint committees have already been organized in a considerable number of communities, and formation is in progress in many others. The object is to duplicate all grievances. The labor men put forward their case dealing with the question of hours and wages. On the other hand, the manufacturers show the labour representatives many difficulties with which they are confronted. As a result of a

number of these conferences, the labor representatives have viewed the industrial situation in a very reasonable way, and it is hoped that this co-operation will be continued and extended.

Licenses

Cable despatches state that Mr. Lloyd Harris and the other members of the Trade Commission overseas, are trying to have the restriction imposed by the British system of import licenses removed so far as Canadian imports are concerned. The effect of these licenses, of course, is almost prohibitory. While it is only natural that Great Britain should want to build up her own manufacturing industries in order to provide employment for her demobilizing soldiers and war workers, it is felt that some preference should be given to Canada.

Canadian Trade Index

The INDUSTRIAL CANADA Committee is proceeding with the revision of the 1919 Canadian Trade Index. This edition will be published during the summer, and will consist of at least 8,500 copies. It will be much the largest edition published up to date. The Dominion Government has promised to take at least 1,000 copies for foreign distribution. An effort will be made to include all manufacturers in Canada, with lists of their products.

Fire Prevention

Following the activities of our Insurance Committee, the Dominion Government has appointed J. Grove Smith, late of the Conservation Commission, to the staff of the Department of Insurance, and he will act in the capacity of Dominion Fire Prevention Commissioner in co-operation with the provincial fire commissioners and fire marshals and with the municipal authorities. This committee, under the chairmanship of Mr. W. H. Shapley, recently met in Ottawa, and adopted many important resolutions with a view to reducing fire waste.

Export Trade to Siberia

The Commercial Intelligence Department has been working on the question of the development of export trade to Siberia. Information has been gathered from well-informed officials who are acquainted with Siberian conditions. We anticipate notifying our membership fully on this subject at an early date, and confidently look forward to developments that will mean bigger production for Canada in that market under conditions that will remove the danger of Canadian manufacturers incurring any losses.

Co-operation With Trade Missions

The Commercial Intelligence Department has been stimulating a greater degree of co-operation among individual manufacturers and groups of manufacturers with the Ottawa office, the Canadian Trade Commission, Ottawa, and the Canadian Trade Mission, London. In this connection the Department has kept interested members posted as to the activities of the Trade Mission, and have been able to get the manufacturers to put the services of about fifty well-equipped and competent advisers on the conditions in various Canadian trades at the disposal of the Canadian Trade Mission in London and has kept Ottawa advised in detail of action taken.

Ontario Shoe Manufacturers

The Ontario Shoe Manufacturers' Association, of which the Manager of the Commercial Intelligence Department is Secretary-Treasurer, has been very active, particularly in the past three weeks. The shoe manufacturers are endeavoring to stabilize labor conditions in their industry covering the province. Three meetings have already been held, and although it is too early yet to state definite results, there is every reason to believe that they will be able to work out a plan, without Government intervention, simply by negotiating with representatives of the workmen whereby the relations between workmen and employers will be maintained on the most cordial basis without injuring either party.

Dominion Bankruptcy Act

A conference took place on 11th ult. of representatives of the Legislation Committee, Toronto Board of Trade, Canadian Credit Men's Association, and Chartered Accountants' Association, when various features of the Dominion bankruptcy bill were fully discussed.

While there is a general reluctance to propose, as a Government measure, the appointment of any new judges or officials, the draughtsman of the bill expresses himself as convinced of the correctness of the substance of the committee's recommendations but the Cabinet Ministers, under whose immediate instructions he is working, are reluctant to submit to the Cabinet a bill involving any serious expenditures. It seemed to the committee, how-

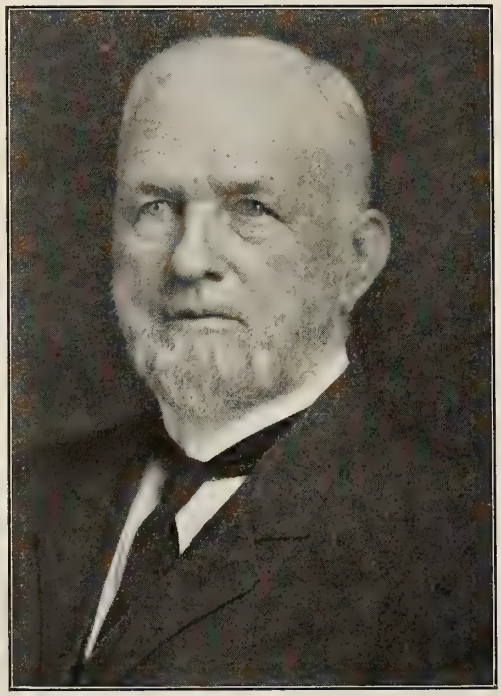


—B. and C. Press Photo

The Late George E. Drummond

Once again we are called upon to record the death and honor the memory of another of the past presidents of the Association, Mr. George E. Drummond of Montreal. His death occurred in London, England, on February 17. Mr. Drummond was well known in connection with the development of the iron and steel industry in Canada, an industry to which he devoted his talents and energies for the greater part of his life. He was a man of a very engaging personality, possessed of qualities that endeared him to all who had personal dealings with him. As President of the C. M. A., a position which he held in 1903-04, he devoted to its affairs that zeal and wisdom for which he was noted.

ever, that if the bankruptcy bill involves additional work for judges, it must necessarily mean increased expenditure, by way of increase in the number of judges or in their salaries, whether the judges operate under Provincial or under Federal jurisdiction. One suggestion made was that a small charge of say one per cent. should be made and the expense of administration thus met. The committee agreed that no objection should be offered to this suggested provision.



The Late George Booth

For 35 years Treasurer of the Association

To men like the late George Booth, whose death occurred on February 20th last, the Canadian Manufacturers Association owes a very great debt. No more loyal or painstaking officer was ever elected to its Executive. A man of sterling character and genial personality, he was regarded with esteem and affection by all with whom he was associated. Born in England in 1844, Mr. Booth came to America early in life and with his father established a brass and copper foundry in Buffalo. Later he moved to Toronto, where at his death he was president of the Booth-Coulter Copper & Brass Co., an industry which had grown from small beginnings to a position of much importance.

After hearing the delegation, who unanimously urged the facilitating of the passage of the bill in the forthcoming session, with such minor amendments as might be agreed upon, it was felt that as the principles of a system of central control was the only substantial ground of difference, the Legislation Committee could justifiably defer to the views of the delegation, subject to adequate safeguards for proper accounting by, and discharge of trustees, and so avoid imperilling the passage of the bill.

National Fire Protection Association

By action of the Executive Committee of the National Fire Protection Association, taken on January 29, the twenty-third annual meeting of the Association will be held in Ottawa on May 6, 7 and 8. The original plan of meeting, as usual, in New York City this year was altered on receipt of an urgent invitation from the Dominion Fire Prevention Committee and the Canadian Conservation Commission to meet at the Canadian capital. The Dominion Government is undertaking important special activities in fire prevention at this time, and it is believed that a meeting of the Association in Canada will assist the Government and the efforts of many Canadian members and be an inspiration to members attending from the States.

Ontario Boiler Inspection

Reference has previously been made to an amendment to The Ontario Factories Act, making it compulsory that all boilers (except those in private dwellings, or used for farm or agricultural purposes) be either insured with a boiler inspection company, registered in the Department of Insurance, or inspected once annually by an inspector, duly authorized, in writing by the Superintendent of the Trades and Labor Branch. An Order-in-Council has now been passed providing that any engineer holding a 1919 license shall be considered duly authorized to make such inspection. An inspection by the engineer in charge of the boiler is not, however, acceptable, although he may inspect his neighbor's boiler and *vice versa*. This does not apply to new boilers, nor to used boilers when repaired, sold or exchanged, which are inspected under "The Steam Boiler Act."

Sections of the Association

So many of the principal industries of Canada have formed themselves into sections of the Association that it may be of interest at the present juncture to publish a complete list of the sections already formed, together with the name of the chairman in each case.

Agricultural Implements.—H. H. Biggert, International Harvester Co., Ltd., Hamilton. Secretary, H. Macdonald, C.M.A., Toronto.

Asphalt Roofing.—A. H. Marden, Barrett Co., Ltd., Toronto.

Note.—Mr. G. E. Messer, Bird & Son, Hamilton, was appointed by Asphalt Roofing Mfrs. as representative to the Executive Council.

Automobile.—G. M. McGregor, Ford Motor Co. of Canada, Limited, Walkerville, Ont.

Boot and Shoe.—(Ontario), G. W. McFarland, Williams Shoe, Ltd., Brampton, Ont.

Boot and Shoe.—(Montreal), Geo. A. Slater, Geo. A. Slater, Ltd., Montreal, Que.

Canadian Woolen Manufacturers Association.—Richard Thomson, Hawthorn Mills, Ltd., Carleton Place, Ont. Secretary, Fred H. Taft, Hamilton, Ont.

Cloak.—J. S. McKinnon, S. F. McKinnon & Co., Ltd., Toronto, Ont.

Corrugated and Fibre Box.—J. S. A. Whealy, 100 Dunvegan Rd., Toronto. Secretary, E. C. Coleman, Martin Corrugated Paper & Box Co., Toronto, Ont.

Engine and Boiler.—Wm. Inglis, John Inglis Co., Ltd., Toronto, Ont.

Engravers.—C. R. McCullough, Ontario Engraving Co., Hamilton, Ont.

Fertilizers.—W. A. Freeman, W. A. Freeman Co., Ltd., Hamilton, Ont.

Food Products.—W. A. McCarthy, Imperial Cocoa & Spice Co., Ltd., Hamilton, Ont.

Furniture.—J. R. Shaw, Canada Furniture Mfrs., Ltd., Woodstock, Ont.

Gold and Silversmith.—(Ontario), L. G. Amsden, Consolidated Optical Co., Ltd., Toronto, Ont.

Gold and Silversmith.—(Quebec).

Jam.—W. R. Drynan, Dominion Canners, Limited, Hamilton, Ont.

Leather Belting.—J. D. McArthur, J. D. McArthur & Co., Brockville, Ont.

Paint and Varnish.—(Montreal).

Piano and Organ.—G. Y. Chown, "Sunnyside," Kingston, Ont.

Pulp and Paper.—Carl Riordon, Riordon Pulp & Paper Co., Ltd., Montreal, Que.

Saddlery and Allied Trades.—F. Hatch, Martin Mfg. Co., Whitby, Ont. Secretary, J. H. Wilson, M. J. Wilson & Sons, Ottawa.

Sheet Metal Building Material.—J. O. Thorn, Metallic Roofing Co., of Canada, Ltd., Toronto, Ont.

Stove.—David Findlay, Findlay Bros., Ltd., Carleton Place, Ont. Secretary, F. M. Tobin, Excelsior Life Building, Toronto, Ont.
Tanners.—G. C. H. Lang, Lang Tanning Co., Ltd., Kitchener, Ont.
Threshing Machinery.—R. Harmer, 126 King St. E., Toronto, Ont. Secretary, H. Macdonald, C.M.A., Toronto, Ont.
Wine Growers.—J. S. Hamilton, J. S. Hamilton & Co., Brantford, Ont.

(Upon application the Ready Cut House Manufacturers have been incorporated as the Ready Cut House Section.)

Ontario Workmen's Compensation

A deputation from the Legislation Committee, consisting of the chairman, Mr. Sam Harris, Mr. H. I. Thomas and the General Manager, recently waited upon Premier Sir William Hearst and Attorney General Lucas and discussed with them the proposed amendments of the Ontario Workmen's Compensation Act, which the Government is requested to introduce at the forthcoming session of the Legislature. The following are the amendments and the reasons for their adoption:

1. That the right of Safety Associations to represent their respective groups of employers before the Board be recognized.

As it has been demonstrated that co-operation has been able to reduce what has been regarded as the normal accident record from 50 per cent. to 75 per cent., and since the common interests of employers compel them to study the accident prevention rate of their respective groups, it is urged that the most effective results can be obtained by permitting the Safety Associations, which were created for the purpose of reducing the number of accidents, to represent their groups before the Board.

2. That a duly appointed representative of each group of employers shall have access to the accounts of the group funds.

It is submitted that this request is in accordance with the principle that those who are taxed should have a knowledge of and a voice in the system which collects and disburses the taxes levied. Moreover, it is respectfully urged that a group is entitled to know whether or not all its members are paying their legitimate assessments.

3. That facilities be provided for appeal to an adequate tribunal on points of law.

While we have no desire whatever to interfere with the functions of the Board, still questions of law arise from time to time which we believe should be settled by an independent tribunal, not only in the interests of the public but in the interests of the Commission as well. As you are probably aware, the Federal Railway Act provides for appeal to the Supreme Court of Canada on questions of law. Permission to appeal must be applied for before the Board and the question at issue determined by it. Under the Workmen's Compensation Act of Ontario as it stands to-day, there is no method available for securing a decision of the Courts in such cases, and it is therefore requested that the necessary machinery be provided.

Activities of the Montreal Branch

By J. M. MACINTOSH
Acting Secretary, Montreal Branch

A GENERAL meeting of the Branch was held at the Ritz-Carlton Hotel at 7 o'clock p.m. on February 20th. The Montreal members "know a good thing when they see it," and when an opportunity presents itself to gather around the table they respond readily. Over one hundred members were present.

The programme announced that addresses would be delivered by Mr. Tom Moore, President of the Trades and Labor Congress, Ottawa, and Mr. Henry J. Elliott, of the legal firm of Elliott, David & Mailhoit, Montreal, but the fact that Brigadier-General C. A. Smart, an old friend and co-worker, had returned the same day after four years of service overseas, gave the members an opportunity of extending a welcome to him. His appearance was the signal for a round of hearty cheers.

Mr. Moore, who spoke on "Trade Unionism or Syndicalism," by his breadth of view and the frankness with which he dealt with his subject, in what has unfortunately, but without reason, been considered an opposing camp, obtained at the outset a very sympathetic hearing, and his remarks were frequently punctuated with applause.

Mr. F. W. Stewart, in the discussion which followed, gave expression to the great importance of opposing factions getting together, for by that process it was so often found that interests were mutual rather than opposed to one another. Through habit these questions had been thought of as under the heading of "Capital and Labor," which implied controversy. He hoped that in future they would be considered as the relationship of "employer and employee," which implied mutual interests.

Mr. Henry J. Elliott, K.C., of the Quebec Bar, read a most interesting paper on the "Proposed Federal Bankruptcy Act." In addition to being a leader of the bar in this province, Mr. Elliott is an authority on insolvency legislation. This was at once apparent in the clear exposition of his subject and the very apt replies he made to the numerous questions that were afterwards addressed to him.

Of course everybody wanted to hear from General Smart, and his short speech indicated that, while looking after the welfare of the troops under his command, he had found time to keep in touch with industrial questions.

A Resolution of Condolence

The following resolutions of condolence with Lady Laurier, and the family of the late George E. Drummond, were passed:

"Resolved that this General Meeting of the Montreal Branch of the Canadian Manufacturers Association order to be inscribed on its records an expression of its sincere appreciation of the loss this country has sustained in the passing of the Right Honourable Sir Wilfrid Laurier;

"Sir Wilfrid Laurier was Premier of the Dominion during its years of greatest development, and his broad vision and wise leadership contributed vastly to the prosperity of that period. Further, the influence of his great gifts of tact and personal charm were always exercised to the conciliation and the bringing together of the different races in Canada. A great statesman has passed beyond. The inspiration of his life will continue to be a stimulus to high patriotism and unselfish public service;

"Be it further resolved that this meeting extend to Lady Laurier its sincere sympathy with her in her great personal bereavement."

"Resolved that the General Meeting of members of the Montreal Branch of the Canadian Manufacturers Association order to be inscribed on its records an expression of its sincere sympathy with the family of the late George Edward Drummond in their sudden and unexpected bereavement;

"His associates placed a high value on the wisdom of his counsels, and his outstanding ability brought to him a prominence in the foremost rank of commercial and industrial leaders;

"He was intimately connected in the formative period in the development of this Association and to his comprehensive outlook and wise leadership is due much of the impetus which

resulted in bringing into closer reconciliation those engaged in industry in the different provinces;

"He filled the position of President of this Association with honor and credit to himself and the organization and his passing will be keenly felt by the membership."

Repatriation of Returned Soldiers

Considerable activity is apparent in connection with the re-employment of returned men. Several meetings of representatives of various associations have been held as the result of a visit to Montreal of Mr. H. J. Daly, Director of the Repatriation and Employment Commission, Ottawa. Mr. Daly very frankly intimated that so far as returns indicated, Montreal was not showing results as compared with other communities, and he considered that all public effort in this connection should be co-ordinated, in order to prevent overlapping and to strengthen the hands of the authorized agencies. As a result a Citizens' Repatriation League has been formed, and its organization has already been justified.

This Association is the local representative of the Civic Improvement League of Canada. It was founded in 1908 by the promoters of the Anti-Tuberculosis Crusade, and since then a good deal of effective work relating to city planning, child welfare, public health, etc., has been effectively stimulated. Believing that the time is now opportune for a rebirth of civic patriotism, the League is now inviting the co-operation of all other organizations interested in civic improvement in order that pressing and important reforms may be effected with the least possible expenditure of time, energy and financial resources. Mr. F. W. Stewart, of Cluett, Peabody & Co., so well and favorably known to the manufacturers, is president.

Address by Colonel Carnegie

On the 31st of January a very representative meeting of members interested in steel and allied industries, was held in the Council Chamber of the Montreal Board of Trade. Colonel Carnegie read a paper, which has been fully reproduced in the January issue of INDUSTRIAL CANADA, outlining European requirements and indicating the opportunities that were open for Canadian manufacturers.

Activities of the Toronto Branch

By H. MACDONALD
Secretary, Toronto Branch

THE permanent standing committee, composed of the Canadian Manufacturers Association and G.W.V.A. representatives, held five meetings during the month, when further action was taken, toward putting into effect a definite system, by which work can be secured for Toronto's soldiers. The preliminary questionnaire forwarded to all the industries in the Toronto district, to elicit information as to the probable number of returned men that could be employed, brought an unusually prompt and gratifying response from the manufacturers—more than one-third of the entire membership in Toronto district having replied practically by return mail. It is hoped the questionnaires not yet received will be at once returned, so that the capacity of Toronto's factories to absorb the labor of returned men, will be definitely ascertained.

The utmost frankness and harmony has characterized all these meetings, a continuance of which will undoubtedly enable our various problems to be quickly solved. The spirit of comradeship which has existed between officers and men has been a great source of strength, during the war, and the stress of war has increased our respect and trust in each other.

In order that all the principal Toronto organizations may share in the work, the Toronto Board of Trade, upon a suggestion by the C.M.A. has formed a Business Council, with which returned soldiers may, through their various organizations, confer on industrial problems and questions of mutual interest, with a view to creating closer co-operation in their solution. Mr. Thomas Roden, Acting-Chairman, Toronto Branch, C.M.A., and Mr. Ed. J. Freyseng are the delegates from the Toronto Branch.

Visit of Hon. G. D. Robertson

The Toronto Branch had a visit from Senator, the Hon. G. D. Robertson, on the 14th of February, when he expressed cordial approval of the method employed by the Executive to collect information as to available labor to be placed at the disposal of returned soldiers and of the terms of the questionnaire transmitted to the manufacturers in Toronto District. Senator Robertson gave a resume of the various large schemes already under consideration by the Government with a view to relieve the labor situation, in consequence of which he stated that he expected by the first of May labor might be in demand. His personal view, therefore, was that foreigners who had proved peaceful citizens should not be deported, as was sometimes suggested.

Cases for Special Treatment

There is probably no class of returned soldier who deserves greater consideration than that of young men, debilitated by military service, who before the war, had begun an academic or professional course, but whose circumstances do not now permit them to complete their curricula. At a recent meeting of the Joint Committee, the unanimous feeling was expressed that some special plan should be devised to enable such young men to complete their education, either by Government aid or private subscription. One suggestion was the formation of a "Flanders Scholarship" for the purpose.

Employers requiring the services of returned soldiers should make application to: Capt. Cleverley, Demobilization Branch, Soldiers' Civil Re-establishment Dept., 287 Queen St. W., Toronto, phone, Adelaide 2903; or to S. Stalford, Representative, Information Employment and Service Office, 45 King St. W., Toronto, phone, Main 3501.

Death of W. K. McNaught, C.M.G.

The Branch Executive also passed the following resolution in connection with the recent death of W. K. McNaught, long a valued member of the Association:

Whereas the members of the Executive Committee of the Toronto Branch of the Canadian Manufacturers Association have learned with profound regret of the death, on 2nd of February, 1919, of William Kilpatrick McNaught, C.M.G., President and General Manager of the American Watch Case Co., Limited, of Toronto, member of the Ontario Hydro-Electric Commission since 1906, President of the Canadian Manufacturers Association from 1906-8, President of the Canadian National Exhibition from 1901-5, member of the Ontario Legislature from 1906-14, member of the Executive Committee of the Canadian Industrial Reconstruction Association, and who re-organized and re-built the National Club of Toronto, and played a prominent part in many other public and private enterprises;

And whereas the late Mr. McNaught, by his outstanding ability, public spirit and unselfish devotion to duty, courage and perseverance, has earned a prominent position in public esteem and endeared himself to his many friends;

Be it therefore resolved that the members of the Executive of the Toronto Branch of the Canadian Manufacturers As-

sociation express their profound regret at the great loss that has been sustained and extend to the members of the late Mr. McNaught's family their deep and heart-felt sympathy.

And be it further resolved that a copy of this resolution be forwarded to the late Mr. McNaught's family.

The Toronto Branch Executive have arranged for a general meeting of Toronto Branch to hear an address on "Company Law," by Mr. Thomas Mulvey, K.C., Under-Secretary of State for Internal Affairs. Mr. Mulvey has made a special study of this important subject and his address will be awaited with keen interest by the manufacturers.

The Toronto Branch Executive have agreed to make a representation to the Executive Council suggesting that the War Trade Board should be continued as a permanent Trade Board. It is believed that valuable information is in possession of the War Trade Board, gathered during war-time activities, which could be utilized to great advantage in the interests of the manufacturers.

Industrial Assessments

The Branch is at present conducting an investigation into the assessment of land used for factory purposes. During the war, abnormally high prices were sometimes paid for land in factory areas simply because the space was needed at any cost. The assessment department, however, has not recognized the circumstances of purchase but has assessed the land at the higher figure. In this way, it is contended, land used for industrial purposes is in many cases bearing a heavier load of taxation than is justified.

The subject has been informally discussed, and it has been decided to investigate this question rather thoroughly in order to secure full information and prepare a case to lay before the Assessment Department to see if some change in their policy cannot be brought about whereby the matter of assessments will be more equally and fairly treated as between industrial properties and other lands not used for industrial purposes. Members are being asked to make an investigation of the assessments of all the lands in their neighborhood, so that accurate information may be secured on which to base a claim for relief.

Death of George Booth

The following resolution expressing appreciation of the services of the late George Booth and regret at his death has been passed by the Executive Committee of the Branch:

Whereas on the 20th of February, 1919, the death has occurred of Mr. George Booth, President of the Booth-Coulter Copper and Brass Company, Limited, who for a period of thirty-five years, was Treasurer of the Canadian Manufacturers' Association, and one of its most respected members;

And whereas the late Mr. Booth had endeared himself not only to the Council and members of the Association, but to a wide circle of friends in civic, business and social life, in which he was esteemed as a prominent citizen, pioneer manufacturer and a founder and life director of the Canadian National Exhibition, and built up for himself a reputation for energy, honesty, perseverance and enterprise as a business man;

Be it resolved that the Executive Committee of the Toronto Branch of the Canadian Manufacturers Association express their profound regret at the great loss that has been sustained and extend to the members of both Mr. Booth's family their deep and heart-felt sympathy.

And be it further resolved that a copy of this resolution be forwarded to the late Mr. Booth's family.

A Get-Together Conference in Hamilton

Manufacturers and Labor Leaders Confer

AT a conference of representative manufacturers and labor leaders held in Hamilton on Monday, February 17, a frank and full discussion of many of the present-day problems confronting industry took place, resulting in a much better understanding than before obtained. Those present were,—manufacturers—Col. Arthur Hatch, Canada Steel Goods Company, Limited; C. H. O. Pooke, Canadian Westinghouse Company; F. H. Whitton, Steel Company of Canada, Limited; Robert Wells, Steel Company of Canada, Limited; F. J. Gernandt, International Harvester Company; C. W Sherman, Dominion Steel Foundries; H. L. Frost, Frost Steel and Wire Company, Limited. Labor men—Harry Bourne, H. W. West, Walter Rollo, Controller Halcrow, Controller Halford, Ald. Aitchison.

In a statement handed out after the conference, the following details of what transpired were given:

"It was pointed out that perhaps the greatest difficulty in the way of securing business to-day is due to the present price situation. Stocks are depleted all over the world, but buyers have believed that lower prices would quickly follow the signing of the armistice, consequently everybody is waiting. When it becomes generally understood that in most lines prices are as low as is consistent with the present wage schedule and when the public generally realize that wages cannot come down until a very substantial reduction in living costs have been made, there should start a buying movement which will produce a great deal of employment.

"It was also pointed out very emphatically that if Canadian companies as well as Canadian individuals would buy goods "Made-in-Canada" it would provide work for a great many thousands. The manufacturers present gave evidence of a large number of things being done in their individual plants to not only keep most of their present staff actively employed, but also to absorb as many returned soldiers as possible, more especially the soldiers who have families. Consideration was also given to the civilian worker with a family and everyone present indicated his willingness to do everything in his power to assist such men to get satisfactory employment.

"It was also shown that alien enemies were very rapidly being replaced wherever Canadians could be found to do the same work.

"The suggestion was made by the labor people that a closer co-operation between employer and employe should be arranged by having the management give direct personal assistance in adjusting difficulties in their own plant. This is now done in a measure by quite a few employers, but it is hoped and suggested that it be made general by all employers of labor.

"The labor representatives also suggested that a special committee be formed to co-operate with the government offices in securing positions not only for returned men, but also for civilians with families. This committee is to consist of two returned soldiers, two labor men and two manufacturers. Regular meetings are to be held and every assistance is to be rendered in securing positions in the order of need of the individual and their families.

"It was felt that all manufacturers and employers generally would assist in this plan, and as a result women and children would be better looked after. The general opinion prevailed that the unemployment was not nearly so bad as some believed, and, furthermore, that with the opening of spring and the undertaking of many outdoor projects, the present unemployment difficulty would in a large measure be relieved."

Our Differences—a Western Point of View



J. H. WOODS

Western Canada Will Respond Readily and Generously to Fiscal Claims that are Justifiable in the Interests of Canada as a Whole—Comments on Financial Differences Between East and West—General Complaints Concerning the Treatment by Eastern Manufacturers and Merchants

By J. H. WOODS
Editor "The Calgary Herald"

"EAST is east and west is west, and never the twain shall meet." That may not be properly quoted, but it represents accurately the views of quite a number of people who concern themselves with conditions in this Dominion. These people are of two classes, namely those whose interest it is to keep the east and the west apart, and those well-meaning but timid souls who hunt trouble through the very fear of it. The great body of thinking Canadians, both west and east, are so convinced of the unity of Canada that they find little even to interest them in suggestions to the contrary.

Two Erroneous Policies

Politicians have tended to emphasize this feeling of separation. There are some politicians in Canada whose only hope of future prominence lies in the creation of cleavages, sectional or geographical, between the people. There are others who, with the utmost loyalty of thought, still feel convinced that political issues must be fought on a geographical basis. A prominent western public man, a friend of mine, recently published an article in which he advocated the creation of a western political party, quite ignoring the fact that nothing that a western party could secure for the west would compensate for the menace that the existence of such a party would be to the country as a whole. On the other hand, I have been recently disturbed by well-meaning eastern friends telling me that the east must unite, submerging all its own differences, to oppose the "aggressiveness" of the west.

Now, both these sets of people are wrong. East and west in Canada, as a matter of fact, is largely a fiction. There is more strangeness between Ontario and Nova Scotia than between Ontario and Alberta. Toronto, I will wager, knows Calgary better than it does Charlottetown or even St. John. I have thought I knew my Canada because I knew it familiarly from Quebec to Victoria. Of course I was wrong. As a matter of fact, talk with any group of Ontario business men and you will find that most or all of them have business interests in Western Canada, while few or any of them have a dollar invested in the Maritime Provinces. Yet we do not hear any tragic rumors of alienation between the middle and the far east.

More than East and West

British Columbia is an absolutely distinct entity from Saskatchewan or even from Alberta, with different climate, products, scenery and interests. The gap between them has only been bridged in recent years by the mid-western tourists, with pockets bulging from wheat crops, who spend their money so generously at British Columbia resorts. And with relation to Eastern Canada, British Columbia interests are quite diverse from those of Saskatchewan. Yet we hear no voice crying for separation between the prairies and the mountains.

Canada is not a place consisting of east and west alone; it consists of the far east and the near east, the far west and the near west, each of which has problems different from the others, and each of which must sacrifice for the others if national existence is to be preserved.

We out here—or most of us—came from the east. Our early homes, our early friends, are there. When we travel there, we speak of "going home," and those we have left there make us feel at home. They are concerned in us; many of them love many of us; they have trusted their capital to us; they have made investments with us; our interests are their interests. How, then, can we talk of antagonisms or of separate ideals? How fail to recognize that the ties which bind us are deeper and stronger than transient conditions or political questions can ever disturb?

Let me define our differences from a western point of view.

Some are fiscal, and these are mostly essential differences. We are an agricultural country, producing our earnings from the soil. The east must recognize our needs, and the tariff must be revised to facilitate the process of agriculture in the

greatest possible degree. But the east will find—and this is important to realize—that the west does not want to tear down eastern industry, nor to erect a selfish western prosperity at the expense of Canadian manufacturers. The west only wants justice as it sees it, and, though its view may sometimes be distorted, it is quite sincere. The west will respond readily and generously to fiscal claims that are justifiable in the interests of Canada as a whole. Nay more, it will make willing sacrifices to maintain the integrity of eastern industrial trade. But certain fundamentals to its own existence it will demand, and these, I am bound to say, the east does not seem ready to concede.

Association not Representative

Take, for instance, the scheme of industrial reconstruction of which we hear so much these days. There is an association with offices in several cities—the name of which I for the moment forget. A well-known Canadian came west as its emissary not long ago and told us all about industrial reconstruction, trying to enthuse us concerning the plans of his organization. But when I looked over the list of directors—a large and very respectable list—I found that it consisted of Toronto manufacturers, Montreal manufacturers, Toronto financiers, Montreal financiers, a sprinkling of railway magnates and I think some lawyers, all resident east of Windsor. On peering through strong glasses, I found scattered among them three or four Winnipeg names, and I said, "Ah, here comes western representation"; but I found that even the Winnipeg names were those of good loyal members of the Canadian Manufacturers Association. West of Winnipeg did not exist for that executive. The farmers of the west were not supposed to have anything to do with the industrial reconstruction of Canada. The coal miner of Alberta, the fruit-grower or the fisherman of British Columbia might be lectured to at Canadian Club lunches, but he found no place among the directors. Is it any wonder that the mission did not excite the people of the west? What Ontario, and especially Toronto, needs to know is that you cannot industrially reconstruct this Dominion of Canada without the west having some little say in the process.

Financial differences are important. There is a tendency in the east to regard Western Canada as a spoon-fed child which has been reared in luxury by its fond parents, Ontario and Quebec, and perhaps there is some justification for the notion. But the metaphor is hardly fair. Western Canada is simply a legitimate expansion of Canada's business. It has cost quite a lot of money, but is already producing large returns. No business man would strangle a growing and prosperous branch of his industry by excessive overhead charges or interest burdens. Yet the west feels that this is to some extent the way it has been treated by the east. Interest is somewhat too greedy in western Canada, and eastern investors, who would be content with a moderate return in the east, appear to think that when they touch the west they may demand higher profits, combined with equal security.

We object out here to the succession of bank mergers. It is not too much to say that we "view them with alarm." We feel that they are tending to eliminate competition among lenders of money and to leave all the competition to the borrowers. Even though our fears be not justified, yet they are apt to aggravate sentiments of distrust which sometimes find expression in unsound views.

Lenders of money have complained of western legislation and with considerable truth. The prairie provinces have embarrassed the lenders' security by giving priority to a number of claims, such as seed grain, hail insurance, telephone construction, and others. They have interfered with mortgage contracts in ways that have caused annoyance and even dismay at times to the mortgage companies.

But such legislation is not maliciously intended. The west is experimental by temperament in legislation as in other respects—healthily experimental—and the mortgage companies have found that where injustice is shown, the west has been ready to remedy legislation of this character. The Year Book of the Dominion Mortgage and Investment Association for 1918 states that Saskatchewan, which has been prominent in radical legislation, has, after conference, so recast its measures that this province has now on the whole "the most useful and fairest legislation governing the relation of borrowers and lenders." And in this work of conciliation the farmers of the west have borne a prominent part. The formation in 1915 of the Joint Committee of Commerce and Agriculture has done much to reconcile the interests of the two parties. Leading farmers have sat in conference with bankers, money lenders, implement dealers and merchants, and the same Year Book testifies that "the farmers have loyally assisted in securing the repeal of burdensome laws." Thus it is seen that when east and west have met together in mutual business confidence, the differences which threatened to separate them have disappeared, and that the same spirit that united Canada in defence of liberty may be used for the uniting of Canada in working out a high and mutual destiny.

Some Business Complaints

There are complaints in the west concerning treatment by eastern merchants, some of which are sentimental, others practical. Wholesalers tell me that there is a tendency on the part of the eastern representaive to treat his western customer somewhat patronizingly and as a commercial inferior, to express frequent and unfair views concerning the security of western purchasers, and to charge profits and interest rates that are not justified by the value of the trade he is seeking. Frequently one hears, too, of favoritism extended by eastern manufacturers to their eastern customers as against their western customers in preferential shipments of goods. It is probable that the west is somewhat sensitive on these points, more so than conditions justify, but business relations, after all, are founded largely on psychology, and it would pay the eastern Canadian to extend more consideration to his western customer than he has in the past, and to make him feel in a greater degree that he is a valued buyer.

Complaint is also frequently made of partiality in bank loans and of delays in securing banking accommodation for legitimate western enterprises which are frequently embarrassing, and in this regard it has been suggested that all the

A Voice from the West

Mr. J. H. Woods, the author of this very moderate and yet outspoken article on the relations between Eastern and Western Canada, is one of the outstanding figures in Canadian journalism. Mr. Woods held office in 1917-1918 as president of the Canadian Press Association and led the party of Canadian newspapermen which visited the battle front in France last summer. An easterner by birth and early associations, Mr. Woods went to Calgary several years ago and may almost be said to have grown up with the West. He is in a peculiarly good position, therefore, to interpret the western viewpoint

great chartered banks might well establish western advisory boards to pass on western loans, the feeling here being that thus western applications would be treated more wisely, more sympathetically and more promptly than at present.

It should be remembered that we have in the west a large proportion of farmers who have come from the United States, and who form a useful element in our community. These men are constantly comparing the prices they used to pay for agricultural implements in the United States with the prices they have to pay here, and questioning the propriety of the difference. Furthermore—and perhaps equally important—they are unaccustomed to our banking system, and to the fact that when they talk to their local branch bank manager, they are only talking to someone who has to refer everything they ask to someone else a thousand or two thousand miles away, instead of being able (as their bankers in the United States were able) to decide the matter there and then. This latter condition is responsible for most of the agitation in the west against the present Canadian banking system, and there is no reason why this difficulty should not be removed by reasonable effort, and the undoubted merits of our own banking system preserved.

Intimacy and Knowledge Needed

I have already exceeded my space and yet have only touched upon the fringe of the subject. The conclusion of my argument is that intimacy, knowledge and frequent conferences comprise the solution of the "east and west" problem. The work accomplished by the Council of Agriculture and Commerce is an illustration of the point. And in this connection remember that the west knows the east better than the east knows the west. As before stated, most of us came from there and most of us go back there more or less frequently. I have often been astonished, when talking to eastern financiers and business men, and having asked them when they last were in Western Canada, to find that their acquaintance with this part of the Dominion has been confined to a trip to Sault Ste. Marie, Fort William, or, at the utmost, to Winnipeg.

Surely what the west did in the war should command the respect of the east. Surely what the west has done in Victory Loans, in reorganizing its municipal finances, in stabilizing its somewhat erratic business, should command the respect of the east. Surely the glorious promise of the future, the building up of a new and hybrid community and the courage with which it tackles its reverses, its difficulties and its problems, should command the respect of the east. Let the east, which is our senior and our present leader, take untiring steps toward mutual confidence and mutual understanding and it will find a quick response in the minds and hearts of western people. Let eastern men come out here more than they do, and learn to know us "under our skins" instead of looking at us merely on the surface. With such a spirit and such an effort, the differences between the west and east will disappear.

The West and Ethical Problems

But there is one element of the west that must be learned by the east, and that is that under all our commercialism we are, as a community, I believe, more in touch with and nearer in heart to the ethical problems of nation-building than you are. It may be due to our large and intelligent agricultural population. It may be due to our physical surroundings, our broad expanse of beautiful prairie, our brilliant sky, our snow-capped peaks. But whatever it is, I believe that here in these great spaces, where God and nature decide our immediate destinies, we are growing nearer to the heart of things than you can in the crowded marts of the east. We are determined that there shall be a decent standard of living for everyone, that the farmer shall have such facilities, such safeguards of health, and such ready provision for education as will make life worth living, and elevate farming to a dignity that in old Ontario it never did possess. We are nearer to labor than you are, because here we are all laborers in one form or another. We want a square deal and are trying to give it to those about us. Above all, we are proud of our country, loyal to its institutions, and earnest in our determination that we will add something by our efforts to the grandeur of its structure. These sentiments and considerations are deeper with us than our concern in the violent fluctuations of our prosperity. As an easterner who has come west to easterners who have stayed east, I say, Do not seek to impose upon us. Learn to know us. Confer with us. Treat us not as a separate community to be exploited, but as part of yourselves. And you will find that the west is eager for understanding, for mutual (but it must be mutual) sacrifices, and keen in its desire to assist in rearing from the ashes of the recent war a great country and a useful nation.

Banquet of the Hamilton Branch

Held February 14th, 1919

HAMILTON manufacturers to the number of two hundred foregathered at the Royal Connaught Hotel on the evening of February 14, the occasion being a banquet arranged by the Hamilton Branch, C.M.A. H. H. Champ, of the Steel Company of Canada, Chairman of the Branch, presided and the guests included Hon. A. K. Maclean, acting minister of trade and commerce; Sir John Willison, president Canadian Reconstruction Association; Col. (Rev.) Wm. Beatty, C.M.G., director chaplain services for Canada, and J. E. Walsh, General Manager Canadian Manufacturers Association.

Much of the speaking turned on the subject of employment. Mr. Champ declared that every manufacturer realized that he should do everything possible to find employment for the returned men. He referred to one plant where before the war sixty per cent. of the labor was foreign, whereas to-day sixty-five per cent. is English. At the same time he urged that it would be a very serious matter to do away with foreign labor. To expect returned soldiers to do the rough, rugged work now performed by foreigners would mean business failure because manufacturers could not produce cheaply enough to make it pay.

Robert Hobson, president of the Steel Company of Canada, in introducing Hon. A. K. Maclean, predicted that some plants may have to close down in the summer because of shortage of labor. He declared that things would come back and that Canada would be in a better position than ever before.

Mr. Maclean urged manufacturers to rely on their individual initiative in seeking out new fields for industrial development and not to rely too much upon the government. The speaker outlined the steps that the government had taken to meet the situation and asked for the co-operation of all in tiding the country over the period of readjustment. With regard to the deportaion of alien enemies, Mr. Maclan stated that the government could not accede to this request, first because the war is still officially on, and second because there was not the shipping available. The government, however, was establishing a system of internment in the case of undesirable aliens.

Inspection as a Means of Fire Prevention*

System under which Plants are Inspected Daily, Weekly and Semi-Annually—Places where Hazards Commonly are Found—Disposal of Refuse of All Sorts—Lockers and Stores and their Proper Equipment

By GEO. H. GREENFIELD

Member N.F.P.A. and Fire Prevention and Safety Engineer,
Canadian Car & Foundry Co., Limited

IN these times of need for conservation it behooves us to pay additional attention to our ways and means of fire prevention and protection. Records, however, will show that, regardless of the extraordinary conditions existing at present, we need even in ordinary times, to devote more attention to the subject in hand than we now do. This paper is not intended to set out, or establish any standard of procedure, but to point out how, by a systematic inspection, an industrial works or factory can have a great many hazards removed, or improved.

In order to describe this system of inspection, it is necessary in a sense to take one on an imaginary tour and describe the various conditions met and how dealt with. Through the courtesy of my firm I am able to outline the procedure adopted at our various works in connection with fire prevention. The basis of the system in operation consists of a weekly inspection of all works, and at sprinklered works a daily inspection.

The weekly inspection form covers the whole of the plant. The original is forwarded to the Fire Prevention and Safety Department, at headquarters; it is checked over with blue pencil; any important findings call for a letter in connection therewith, or the Department takes the matter in hand direct, as necessary. Small items which are, however, sufficiently serious for notice, are underlined in blue pencil and put on a special file to wait till the next report arrives, to see if they have received attention, and in the majority of cases they have been O.K'd. If the next weekly report still repeats the item, a letter is sent to the superintendent of the works calling attention, and requesting that the defect be corrected.

The daily report deals with the more vital parts, or important features of the protection apparatus, that would seriously endanger the safety of the works if neglected over night. In such cases of, say, "A Fire Door Found Stiff," or perhaps an important "Valve Spindle Bent," details are filled in on the daily report sheet of the repairs required, same is authorized, and the form handed to the man in charge of the job, who has to sign it before leaving, showing that the apparatus has been put into proper order.

This inspection is carried out by a special "Fire Inspector" and it is found that in order to get round and attend to the work properly he has his hands kept quite full. In addition a half yearly rigid inspection is made by the Fire Prevention Department from headquarters.

Nothing is missed if possible, and in order to give an idea of what is covered I would mention some of the following: The opening of all electric light fuse boxes to see that proper fuses are used and also that they are not too high. The opening and smelling of all bottles in suspicious places, in a search for unauthorized use of gasoline or similar inflammable spirits. In this connection an amusing incident occured some year or so back when an outside inspector went into a vault in one of the offices. He was asked what he expected to find? Gasoline! A bottle was found. He then started in to look for more. When asked why the inspector stated that there was too much dust on the neck of the bottle, and therefore it was not the "service bottle." In a few minutes a milk bottle was found half full of gasoline with a piece of newspaper tied over the top. It is in our little museum to-day. This subject is being dealt with at length, as the use of gasoline at all times involves a serious hazard. To-day it would be a hard job to find any gasoline, benzine or wood alcohol in use which is not contained in approved safety cans.

The safety can consists of a special portable steel can fitted with a spring cap, and a gauze guard in the mouth to prevent flashing and ignition. These cans when met with, are toppled over on the floor to determine their condition. Another feature is that, when a man is found using gasoline even in a safety can he is asked what is the smallest



The Safe Disposition of Waste
Much danger may be avoided by the use of a "self-closing" oily waste can

*Paper read before Montreal Branch of the Engineering Institute of Canada.

quantity he can manage with, and if possible to reduce the size of his can from say one gallon to one quart. Safety cans are obtainable in sizes from one pint to five gallons, although they should always be maintained as small as possible.

Attics are climbed into and electric wiring looked over. Also it is surpising what wonderful collections of old records, papers, etc., in general, find their way into these places.

A stable is a great place to find all kinds of hazards. Some months ago an inspection revealed, that in the harness room was a fairly large stove, and close behind the stove was a shelf where were kept several kerosene stable lamps. On going into the hay loft, which had several tons of hay stored on the floor, it was found that the smoke pipe passed through and was in contact with the hay. The pipe was just ordinary tile sewer pipe, and there was actually a piece broken out at the joint through which one or two fingers could be passed. Another stable inspection showed a wooden fuse box with no door, open fuses, and hay within a foot or so of same. Yet another stable that was being inspected, and really held good promise of interesting items, was found to have a female bulldog and pups in a manger. This inspection was called off in a hurry.

Steam Pipes near Woodwork

An important hazard, and yet one that is perhaps not quite obvious, at least the true reason is not, is the common practice of erecting steam heating coils, and steam pipes in contact with woodwork. The danger is not on account of the heat of the steam causing ignition, but that even a moderate steam temperature ultimately causes carbonizing, or charring of the woodwork. The charcoal so formed is liable to spontaneous ignition under favorable conditions, and represents the risk. Charcoal made at a low temperature is supposed to ignite at a correspondingly low temperature.

All steam pipes and heating coils should be kept at least one inch clear of any wood supports, if used, and iron brackets with clamps arranged so that air circulation can take place.

Steam mains must be watched very carefully, as the temperature is higher and cases have been found where pipes have been run through wooden partitions, and holes cut with a bit just large enough to clear the pipe. In one case very serious charring had taken place.

The writer recalls another instance some years back where a low grade pipe covering had been used on a superheated steam main passing through a basement, and he happened to be in the building when same ignited, or rather began to burn sufficiently to call attention.

An Unsafe Kind of Stove

The common stove or Quebec heater, so often used in yard offices and workmen's shelters is worthy of mention. These stoves are frequently found not to stand on legs, but rest on a small plate directly on a wooden floor. In all cases legs should be fitted and an ample plate provided, again resting on bricks so as to allow of air circulation. At best the Quebec heater is an unsafe stove and, if a stove is needed. it should be fitted with a grate. A clearance of about 24 inches should be arranged at the rear and sides, and iron plates on spacers given about 3 or 4 inches air gap in all cases where combustible walls exist.

The stove pipes are often far too long, and not properly supported. Where stove pipes pass through partitions or ceilings these should be properly centered and fixed in a second pipe giving an air gap of quite 4 inches, and then ventilated. Smoke pipes that pass through attics must be guarded, as even if the attic head room is only a few feet, rubbish of all kinds is often thrown up out of the way, with no regard to our friend the pipe.

We now come to the disposal of office refuse, excelsior, papers, etc. A common practice is to burn this material in the ordinary office hot water furnace. The result is a very rapid generation of heat, sometimes excessive, and carrying of bits of burning paper up the chimney which float around possibly, and lodge on the roofs. With hot air furnaces this may cause overheating of the ducts.

All rubbish should be burned in the works boilers or else in special incinerators with conical tops and a short chimney with ¼ inch wire mesh over the top. Strong doors must be fitted and kept closed to prevent down drafts blowing burning papers, etc., out around the yard.

Use of Local Incinerators

Most works of any reasonable size will find it advantageous to consider installing some of these incinerators at various points, in order to get rid of combustible rubbish in a safe manner. The heating value of material of the class under discussion would rarely warrant its haulage to the boilers for fuel, and the use of an incinerator tends to accelerate its immediate disposal, which is most desirable.

Old overalls, newspapers, bags, etc., are frequently to be found stowed away in all kinds of dangerous places, particularly behind steam pipes which seem to form a kind of convenient storage rack, and this practice constitutes a hazard.

Wooden clothes lockers afford a subject for investigation, and a man has been found to have two or three old pairs of cast-off boots, old overalls, bags, newspapers and sundry combustible matter including bits of oily waste all stowed away in his locker. Old sacks are often an object of value and are thrown up on top of the locker or behind it.

Wooden lockers always constitute a hazard, due to the chance of fires starting from hot pipes and matches, or oily waste igniting from spontaneous combustion. Where wood lockers exist endeavor should be made to replace them with ones of steel properly ventilated, which will help the drying of street clothes when wet, and also prove far more sanitary. If necessary substitute a few steel lockers every month so as not to overburden the operating expenses.

Proper Locker Equipment

All lockers should be arranged with sloping roofs making it impossible to allow rubbish to accumulate. Existing wooden lockers can be improved by cutting large diamond shaped holes in the front, top, and bottom, say 8 inches by 6 inches, according to size, and fitting strong wire mesh.

Large wooden lockers in sprinkler plants should have the tops removed and wire netting fitted covered with cheesecloth in order to allow the sprinklers access and at the same time keep out dust. This is preferable to fitting sprinkler heads as is sometimes done, which latter practice helps to overload the sprinkler risers with an excess number of heads.

Storehouses are often the scenes of very unorthodox practices, some of which cannot be blamed directly to the storekeeper, as the materials received have to be taken care of and perhaps come in faster than they can be properly handled. Frequently large quantities of small breakable goods are received, which give rise to an accumulation of excelsior and soft packing material of all kinds, and this is generally highly inflammable. An incinerator can nearly always find a job near the stores.

In many instances it will be found that the stores act as a distributing centre for gasoline, kerosene, lubricating and linseed oil, varnishes, etc. These are often arranged on combustible floors, and sawdust used to soak up the drips, linseed oil being particularly objectionable, as when it saturates the

Canadian Car & Foundry Company, Limited
Canadian Steel Foundries, Limited
AND SUBSIDIARY COMPANIES
MONTREAL, QUE.

_____ Works Date_____

FIRE PROTECTION EQUIPMENT WEEKLY INSPECTION

1. **Gate Valve.** All valves to be given a turn or two in each direction, and back to original position. Any found to be out of order to be repaired at once No material to be piled so that same has to be removed before valves can be operated Keep spindles well oiled All snow must be cleared and access maintained.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

Underline valve numbers if O K Make note giving reason, if any found closed or partially closed. State any defects. See that numbers are all plainly marked on valves and correct. Are handwheels or [illegible] present? Valves must never be closed on Sprinklered Systems without attaching *Red Tag*.

Remarks . . . . . .

2. **Sprinkler Valves.**—Wet and Dry

Valve	ALARMS Electric	ALARMS Water Gong	PRESSURES Air	PRESSURES Water	Valve	ALARMS Electric	ALARMS Water Gong	PRESSURES Air	PRESSURES Water
No. 101					No. 146				
" 102					" 147				
" 103					" 148				
" 104					" 149				
" 105					" 150				
" 106					" 151				
" 107					" 152				
" 108					" 153				
" 109					" 154				
" 110					" 155				
" 111					" 156				
" 112					" 157				
" 113					" 158				
" 114					" 159				
" 115					" 160				
" 116					" 161				
" 117					" 162				
" 118					" 163				
" 119					" 164				
" 120					" 165				
" 121					" 166				
" 122					" 167				
" 123					" 168				
" 124					" 169				
" 125					" 170				
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" 143					" 188				
" 144					" 189				
" 145					" 190				

All low points on dry systems where drains are fitted to be tested weekly to remove condensation water, and be sure pipes are not frozen. State number of any valve or system where defects exist, such as air pressure trouble, leaky valve seats, water entering system, valve tripping.

See that cold weather valves are closed in time and systems properly drained.

When batteries are used for operating alarms, voltage to be tested.

Report all Sprinkler Heads Fusing, state degree of head, and reason for operation.

Remarks _____

Whenever sprinkler heads operate, same are to be replaced at once and protection restored.

REPORT DETAILS OF FIRE HERE

Time_____ **Date**_____

How discovered and by whom?_____

Was alarm turned in?_____ **What Box No.**_____

Number of Firemen turned out_____

What caused fire? Give all possible details _____

Was any protection apparatus found defective? Give full details_____

What time was fire completely extinguished?_____

General Details:—Stating what apparatus was used to extinguish fire. State exactly what has been damaged. If Automatic Sprinklers have operated give number of heads and temperature deg. of same.

Estimated amount of damage, $_____

Preventative Measures—State *what has been done to prevent a re occurence*, if possible, or what you would suggest.

3. **Gravity Tank**—Full_____ Empty_____ **Gravity Tanks must be kept full, it is your Reserve supply.**
State any defects, heating or otherwise
Fire pumps reservoir, report height of water in.

Remarks _____

4. **Fire Pumps.**—These to be turned over once a week and tested to full capacity three times a year. Detail any defects Fire pumps must be kept in first class order at all times. Electric fire pumps to have insulation of motor and switch gear tested at least every month.

Remarks _____

5. **Hydrants.**—Report any missing or defective equipment, such as hose, nozzles, spanners, wrenches, axes, washers, etc See that spindles are well oiled and in order. Report hose being used for other purposes than fire Pay special attention to draining Keep snow cleared away in winter.
A, B, C, D, E, F, G, H, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z.
Underline hydrant letters if found O K.

Remarks _____

6. **Automatic Sprinklers in General**—Examine carefully for heads that are corroded, whitewashed, painted, frozen, covered with dirt See that a space of two feet is maintained under heads.

Remarks _____

7. **Fire Pails.**—Are all in place and full of water, sand or sawdust, and bicarbonate of soda in paint shops. Water in pails or barrels to be emptied and replaced every six months, where calcium chloride is used to prevent freezing, care being taken that proper amount is added.

Remarks _____

8. **Chemical Extinguishers.**—Number on hand; are same full and in order?
Every month one chemical extinguisher or more to be selected and tested by actual operation, care being taken that these tests cover testing in rotation, and records kept Test so as to cover all inside twelve months preferably oftener
Pyrene Extinguishers. Must all be kept full and examined weekly. Be careful that no water or moisture gets mixed with the Pyrene Fluid After using in confined places ventilate well.

Remarks _____

9. **Fire Doors.** Examine to see that same are all free and in order, fusible links, if any, in place. No material piled or trucks left in doorways

Remarks _____

10. **All Roofs** to be inspected for shavings or sawdust accumulation. All fire ladders, fixed or portable, to be inspected. Are running boards safe? Hose ropes in place? All down pipes and strainers must be kept clear, and in place

Remarks _____

11. **Works Fire Alarm** system to be tested every week, taking boxes in rotation. Report numbers of boxes tested and remarks This test should be made in conjunction with the weekly fire brigade drill if possible.

Remarks _____

12. **Fire Brigade Drills.**—Keep list of equipment for brigade and check frequently
When was last drill held? _____
How many men turned out? _____
How much hose laid? _____ Run hose up to the roof once a month at least.
Fire drills to be held in a different location each time, as apparatus will thereby be properly tested out in all parts of the works. Hose must be properly dried after wet drills, or fire.

13. **General.**—Make special note of any accumulation of oily waste, rags, dirty clothes lockers. Watch for improper use or leaving about of cans containing gasoline, any inflammable oil or spirits.
Note condition of elevator shaft bottoms, look behind steam coils for papers and rubbish.

Remarks _____

Note.—This report does not cover everything and it is the duty of the person making the inspection to report anything that in his opinion constitutes a fire risk, inefficient fire protection apparatus, or an obvious risk or danger to human life in any part of the Works.

Remarks _____

Inspection made by_____

Approved by Chief of Fire Dept._____

Noted by Master Mechanic_____ **who will arrange for repairs as quickly as possible.**

Superintendent_____

Date_____

Copy to be sent at once to FIRE PREVENTION & SAFETY DEPARTMENT, MONTREAL.

GENERAL

A supply of bulletins covering the Fire Underwriters' Regulations concerning fire pumps, hydrants, hose houses, sprinkler systems, dry pipe valves, handling and storage of fuel oil, etc., has been sent to each Works. If you have not got them apply at once for more, stating the particular ones you want on this form.

Gasoline, Benzine, etc.—Under no circumstances are these spirits to be handled except in "special safety cans" approved by the Underwriters *It is your business to insist on this.*

This inspection is to include *Works and Office* No department or room is to be missed under any circumstances. Watch offices for **Gasoline in Bottles,** kitchens for kindling material behind stoves, etc.

Fuel Oil.—Examine vicinity of tanks, furnaces, pump houses, etc., for accumulations of oil, same to be cleaned up, and place well sanded See that all automatic shut off valves are kept in perfect order.

Oil Tank Cars must not be left on sidings near buildings. See that 4 inch pipe is used for emptying, so that cars can be got away quickly

Paint and Varnish Stores.—Pay special attention, see that sufficient pyrene extinguishers are provided; also sand buckets and hand scoops. Saw dust and bicarbonate of soda is better than sand. Mix 3 pounds soda to a bucket of clean dry saw dust.

Shafting, Pulleys, Belts.—Watch for places where fires may be caused by friction of same against woodwork, Do not use saw dust for absorbing oil drips, use sand

Furnace Rooms must be kept clear, and no clothes or rags of any kind allowed on pipes. Do not allow excess quantities of kindling, or accumulations of paper.

All Hose must be tested under full water pressure at least once a year, and a record of all lengths kept, stamp numbers on couplings

Hydrants.—Before cold weather sets in *flush all hydrants* properly Pay special attention to those at the end of water mains. See that all hydrants drain properly.

Report all Fires in detail *on back page of this form* State particularly *how caused* if possible, and estimated damage. No detail is too small.

When Testing Chemical Extinguishers and Fire Alarms, if possible always get some person in the department where same are located to operate or test extinguishers for you; also to turn in the practice alarm for fire drills, as it is essential that everybody should know how to use same. *Chemical extinguishers* when being recharged or tested must be completely emptied by actual operation.

Wash out very carefully, and slip a piece of rubber hose over the nozzle and pass a good stream of water up same, see that strainer is clear. Always put in bicarbonate of soda and then add water up to mark inside. Then stir well and see that all soda is dissolved. Carefully wash acid bottle and cage, dry same, and fill to mark with sulphuric acid, close up. *Put date on tag.* Hang on hook.

Never add any other ingredients, there are only three!

Bicarbonate of soda, water and sulphuric acid.

Sprinkler System Maintenance.—Full information has been supplied, if you are uncertain send to headquarters.

If at any time it is necessary to *remove protection* by closing any valves on the water supply a *Red Tag* must be filled in and attached. Notify the inspection office having jurisdiction at once by telegraph or telephone also notify Fire Prevention and Safety Dept., Montreal, on special form. Montreal plants will telephone.

See that a good supply of spare fittings, pipe, and extra heads are *always on hand*, as protection must be restored *quickly in case of trouble.*

This form is for *mutual benefit*, and any information given of general service will be sent to all Works by special *circular letters.* When these arrive please see if another Work's experience will help you.

Suggestions to improve the efficiency of the fire department will be appreciated.

Remarks:

Weekly Inspection Form used by Fire Prevention and Safety Department, Canadian Car & Foundry Co., Limited

sawdust there is a good chance for spontaneous ignition. Sand is far preferable for soaking up drips, although it does not look so nice.

Isolated fire-resistive structures should be put up for oil houses, with buried tanks for gasoline and benzine. The rest may be handled or stored in surface tanks with measuring pumps. These pumps will soon pay for themselves in the amount of oil or liquid they save.

The ventilation should be ample. Electric light wiring to be in conduit with vapor-proof fittings and globes. Locate the switch outside buildings. Prohibit naked lights. A good practice is to install steam jets and outside control valves if oil house is of any considerable size.

Regarding the handling of volatile inflammable liquids, a great safeguard can be taken at the stores, if it is absolutely prohibited to distribute same under any circumstances except in approved safety cans.

Cotton waste is a material that should be kept in metal bins, as it is sometimes liable to overheat from spontaneous combustion, especially when damp. Not long ago the writer thrust his arm into a bin of waste and found it rather hot. Some thermometers were secured and the temperature taken; also that of the surrounding air. The actual difference was a rise of 40 degs. Fahr. over and above that of the atmosphere. This waste was ordered out for an airing, and a special metal-lined bin with lid controlled by a fusible link was ordered.



Safe and Unsafe

Note the effect of a cigar end on the wicker waste paper basket

Proper Storing of Supplies

Oakum, bags, cotton waste, etc., in bulk, should be all kept, if possible, in a non-heated annex to the stores. Cases are not unknown where stores have their own heating system and furnace. This condition is wrong, as it always tends to allow of the refuse being allowed to accumulate, and be burned in the furnace when convenient, which may cause overheating as before mentioned. The fuel oil question is rather too extensive to deal with in this paper. It is very carefully covered in the underwriters' bulletins.

There is, however, one detail that might be of interest—the use of automatic shut off valves. Statistics show that over 25% of the fires in connection with fuel oil systems arise from broken pipes. In order to deal with the broken fitting or pipe, which in most cases means a serious fire, automatic valves should be installed that will operate and shut off the supply in the event of the pressure drop through the valve exceeding a certain amount. To properly protect a system by this means it is necessary to install a master control valve on the main line from the pumps, which will deal with large breaks. The network or distribution system will then have each pipe leading into a building fitted with an individual control valve, and if the building is large and contains many furnaces or even furnaces with a number of burners, further sub-division should be arranged. It has been found that these valves when on the smaller pipes and properly looked after will close off the supply of oil even if an attendant happens to open the needle valve to a furnace burner more than is necessary.

It is advisable to fit bye-passes around the automatic valves, which allows of their being properly maintained. A test valve is also fitted which can be opened up into a bucket quickly, so as to make the "Shut off" valve operate. This type of protection is not largely known about at present, and, although the expense of the valves seems high at first sight, it is really very cheap insurance when one considers or knows by experience what a broken ½-inch fuel oil pipe will do in the way of starting something. It is desirable also to arrange a diaphragm-operated valve on the oil main that will close in the event of the air supply failing.

Special armored cables for electric hand lamps for use when cleaning the oil tanks should be provided. These should have vapor proof globes, and locked metal guards so that if the lamp is broken the man using it cannot change it in the tank. Under any circumstances the installation of quick closing gate valves should be considered, located outside of all buildings on the fuel oil main with a suitable notice *re* use of same. The electric lighting system should be gone over, and such items as bare arc lamps watched for. In most cases electric lamps should be provided with locked guards. A weak point is often found in the very light flexible wire used on drop and extension lamps. Nothing but reinforced cables should be allowed.

A common fault on sprinkler plants is the use of the sprinkler pipes to hang the electric drop light cords from, so as to bring them to a more convenient position, This practice is prohibited, as the sprinkler pipes form a perfect ground connection, and with faulty insulation fires may be started. Many dangerous conditions may be discovered by careful inspection of the electrical apparatus, such as: the enclosing of resistance grids in nice close-fitting wooden boxes; home-made electric heaters in offices under desks; paper shades on lamps, etc. There are, however, too many possible hazards of this class to go into further detail.

All roofs of buildings are required to be covered by regular inspection, especially around woodworking plants where cyclones or dust collectors and shavings piping are over same, as a thick deposit of fine wood refuse accumulates and may be ignited by sparks from locomotives, or even men smoking while working on the roof. It is surprising how convenient it is to leave all kinds of lumber and material behind when doing a repair job on top of a building.

The Hazard of Roofs

A lookout has to be kept on roofs for men smoking, as cases have been known where men have been working where access can be had. Crane drivers also frequently can easily get on the roofs and eat their dinners and smoke afterwards, thus introducing hazards that can be prevented.

Oily waste cans are an important feature in storekeeping. Wooden boxes or barrels are often found in use. The principle reason why oily waste should be looked after with care is that it may be subject to spontaneous combustion. The word "may" is used because, waste and rags, etc., soaked

in mineral oils are not generally recognized as being susceptible, but vegetable oils may possibly be used, and if so the danger exists of spontaneous ignition.

The standard oily waste can is simply a good strong can on legs about 4 inches high so as to allow of good air circulation, and insulating effect from the floor in case of fire. The lid is strong with an arm rivetted on the back so that it is self-closing, and good handles should be fitted. It is a great mistake to make these cans too large. About 16 inches dia. by 2 feet high is a convenient size. If made much larger it takes quite an effort to empty them and they are neglected. Waste cans have been met with in some shops that would take two men to handle and empty.

The Care of Overalls, etc.

The disposal of all papers and refuse is preferably dealt with in similar cans to those described, as it is not possible to discriminate as to what shall go into any can used for the disposal of refuse.

The leaving about of greasy overalls should not be tolerated, on account of the possibility of spontaneous combustion. Painter's overalls introduce a grave hazard for the above reason, and there is a practical certainty that there will be a certain amount of linseed oil present which is the objectionable feature. Cases are known and frequently found, where painters have stuffed their overalls away for the night behind radiators, lockers, in fact anywhere but in a safe place. Our inspection calls for immediate burning of painters' overalls found lying about. This is a hard matter to enforce, however. Cases are on record of fires from painters' overalls and presumably caused by spontaneous ignition, but details are unfortunately lacking.

Regarding painters' dressing rooms, these should undoubtedly be isolated from the main buildings, and of fire resistive construction. Sufficient heating and plenty of ventilation should be provided. It may be strange, but nearly all painters' dressing rooms seem to be overheated, and there seems to be an affection for old overalls and paint saturated boots, etc. The painters do not seem to like to get rid of them. This tendency and the overheating are factors helping spontaneous combustion.

The solution to the entire overall hazard is the provision of proper wash rooms, with steel lockers, etc., the entire structure being fire resistive. Of course, this cannot, in many cases, be entertained. The planning of a new works should always treat the dressing rooms as being an essential and as important a means of fire protection as the hydrant system.

The proper cleaning of woodworking shops, and disposal of the refuse is of great importance. There is no need to discuss the general methods of collection of shavings and wood refuse from machines by exhaust fans. Many plants, however, do not apparently have sufficient fan capacity to properly deal with their refuse, and improvement can sometimes be made by fitting additional gates in the mains and insisting on their use. The provision of a sufficient number of floor sweep connections is of great help for cleaning up the shop. These do not affect the system or overtax it, as they should be fitted with good gates, and are generally used at the end of the day or when the work is easing up.

The daily inspection calls for a visit to all woodworking departments before leaving, to see that the "clean up" has been carried out properly.

Flash Fire Dangers

A feature in woodworking plants that is not appreciated is the production of a great deal of "wood dust." This dust collects on tops of beams, on safety guards, or netting around pulleys, and inside pulley rims. There is always the danger present of a "flash fire" or practically an explosion from this material. All guards should be brushed, and pulleys cleaned out regularly, as required to keep them safe.

The water main system must now be considered. It is not proposed to discuss sizes of pipes, as so much depends upon local and individual cases. A defect found on many water main systems in large works, is that the system is not looped, also sufficient section control valves are rarely fitted, and in case of hydrant, valve, or water main repairs, often 75%, or even the whole of the protection, is removed.

The installation of sufficient section valves on an otherwise fairly good loop system will ensure that at the most never more than 25% of the protection will be removed and frequently less.

A scheme which has recently been adopted for certain plants which, however, may not be new, is as follows:

Double female couplings are provided, and, in case a sectional shut-off for repairs happens to isolate a second section or outlying branch of the water system, the double female couplings are connected to a hydrant on the isolated, but otherwise sound section, and lines of hose are run in order to bridge the section under repair. All water main systems do not allow of this scheme being adopted, but it allows of keeping the maximum amount of protection on a works at all times.

The double female coupling has a second use, in the event of failure of the works fire pumps, or need for additional water supply. These special couplings allow of a fire department steamer pumping directly into the works system, either for sprinkler or hose supply.

The checking over of a works water system by closing off certain section control valves, and obtaining the maximum number of fire streams to prove the pipe capacity is advised, as although we have so far found no movable obstructions, it is possible that foreign matter could be in a pipe and not be detected on a large network or loop system, until a heavy demand for water arose. Where a large system exists, considerable values are generally at stake, rendering the above trouble worth while.

The use has been made made frequently of a Piezometer and standard nozzles for main capacity testing, and in one case tests showed that from cer-



Making Fire Buckets Conspicuous

Barber-pole idea used in making location of fire buckets prominent

tain hydrants it was impossible to get the amount of water through that the size of the mains showed to be possible. Investigation was made at a likely place and it was found that a check valve had been wrongly installed and instead of an 8 inch service, the maximum amount of water was that obtainable through a 4 inch pipe. The necessary changes were at once made to correct this.

Regular Inspection of Hydrants

Regarding hydrants with their hose houses and equipment, one of the outstanding points is careful inspection during cold weather to see that hydrants do not get frozen. A preliminary to this is a very careful inspection each fall, to see that there is no leakage, and that the hydrants drain properly. The use of yard hydrants to supply water to locomotives and cranes should be prohibited, as the inevitable result is frozen hydrants in the winter, the hydrant valves being only partially opened and grit and small foreign matter being washed up into the hydrant and the valve closed on same.

The hose house equipment is important and must be continuously checked. Home-made play pipes are sometimes met with of most crude design. Play pipes also become damaged by use at fires, and drills. In order to get the maximum effect with a given water supply it is essential to use standard play pipes. "The Underwriter Playpipe" is a good serviceable type, possibly a little lightly constructed.

It must be borne in mind that, to put out a fire of any size, a heavy stream of water is required, and that 1⅛ inch and ⅞ inch streams frequently fail, being turned into steam. On the other hand too large a nozzle must not be used, as its smashing power and reach may be lost.

Under this heading of nozzles may be mentioned apparatus for producing heavy streams. At our works where large lumber yards are maintained, we provide deluge sets. These sets consist of a three-way Siamese and a short length of larger hose leading to a large nozzle mounted on a tripod.

The result of Siamesing several standard hose lines into one, in this manner is to produce a very heavy fire stream up to 2 inches, and a 2-inch stream with about 70 lbs. nozzle pressure, will discharge nearly 1,000 gals. per minute. The quenching effect is obvious of a stream of this size. Smaller nozzles are provided to suit the requirements for a far-reaching, high pressure stream.

The question of providing monitor nozzles was considered as an alternative to the above apparatus, but the portability of the deluge sets was thought to be an advantage, and to give better protection. Incidentally the cost was considerably less than that of the monitor equipment. This deluge set can also be operated from the top of a box car with a little rope lashing to make it safe.

The Question of Hose

The hose requires careful attention. For most situations the regular "underwrters' mill hose" fills the bill. Double jacketted hose is sometimes used, which stands a deal of heavy wear. A private fire department, however, unless well trained, finds this heavy hose unwieldy, and is able to handle single jacket hose much faster.

The keeping of records and regular testing of hose is most important. At some of our larger works each length of hose is numbered and a record kept of make, when purchased, at what hydrant located, and dates of tests. All hose is tested twice yearly and if a length of hose at a hydrant in a hazardous area shows signs of fatigue or is not first class, but still reasonable, that particular length is removed to a less hazardous hydrant, and replaced by a new length. A record of the change of the location is made and the new length entered up. The above procedure is quite necessary, as practically new lengths of hose have been found to fail sometimes with proper treatment and moderate pressures.

Apparatus, such as a tower, or rack for quickly drying hose is essential, as otherwise after a fire or wet drill a hose house is frequently short of hose unless sufficient spare is kept for the purpose of replacing wet hose.

The fire bucket is worthy of its place. Small fires have often been reported "Put out by night watchman with one fire bucket." There are several kinds of buckets and methods of hanging or locating them. Many buckets found installed are of no practical use. They look well, but if examined it will be found that they have rounded bottoms and no handle or projection to allow of a good grip, so that the contents man be forcibly thrown. The rounded bottom is fitted in order to prevent the bucket being used for other than fire service.

Fire Bucket Arrangements

The question how to best support buckets must be considered. In some cases stands are provided with holes cut in them in which the buckets sit. This arrangement, although common, is not good, as the buckets frequently jamb tightly and in addition to wasting valuable time, the water is liable to be nearly all spilt, even if the bucket is pulled out at all. A better arrangement is to use a strong board as a back, and provide hooks or brackets so that the buckets simply hang, and also hang plumb. These hooks should be no more or less than five feet from the floor as the boy and small man have to be considered.

Fire buckets are sometimes arranged nested in fire barrels, or hung on hooks inside them. There are distinct disadvantages to this practice, as unless a man (and you must consider the newly started workman) is familiar with the practice he will waste time looking for a bucket; whereas a bucket on a hook stands a chance of being seen.

A point now crops up: "Visibility." The feature of bucket protection is to cope with a fire before it has grown beyond the control of this apparatus. It is, therefore, necessary to locate buckets so that they are in definite locations in all buildings, or at least a certain number of buckets should be inside doors always, on the handle or lock side, if possible.

Making Buckets Conspicuous

An interesting case recently cropped up in a large woodworking mill. The writer went into the shops, which were incidentally full of various machines, and asked where the fire buckets were. He was shown a few and the men taking him around, who were familiar with the location, eventually found quite a number all properly filled, but they had to be looked for. The feature was that the buckets were not prominent or visible. They were there and hung in all kinds of odd places, quite accessible, but you did not see them. These buckets were rearranged in groups of three, four or more, and hung on brackets placed below boards. The boards were painted with diagonal white and red stripes, and the buckets the standard bright red, "Fire Only." The result was that whenever you went into those shops something hit you in the eye at once. It was the buckets.

The question of shape should be considered, although the average firm does not make its own buckets. The ordinary bucket is too shallow. A bucket drill will easily prove this statement. A shallow bucket does not allow accurate throwing or manipulation, principally on account of the short leverage. A really serviceable shape has been found to be 11½ inches diameter at top, 6 inches diameter at bottom, 14 inches deep, with a handle on the bottom.

(*Continued next month.*)

Tariff Statement Aroused Much Interest

Editors of Canadian Newspapers from Coast to Coast Penned Comments Varying from the Highly-Favorable to the Super-Critical on the Association's Statement of its Position—Extracts from Some of the More Important Editorial Utterances

ONTARIO

Mail and Empire, Toronto, January 29th.

"We believe that the statement of the Canadian Manufacturers' Association expresses the sense not only of the manufacturers and the wage-earners they employ, but of the Canadian people as a whole. Free trade, or any approximation to free trade, would be condemned by the overwhelming mass of the Canadian people; it would be the destruction of the Canadian farm industry. The hopes of the farmers of Canada are bound up with the national policy as they never were before. Nothing our farmers can do at the polls or anywhere else will avail to enlarge Britain's steadily shrinking demand for wheat imports. And nothing our farmers can do at the polls will avail to lessen the magnitude of the United States grain output, or prevent India, and the Argentine, and Siberia adding annually to their wheat acreage. But the Canadian farmers can do this at the polls: They can expand their greatest and best market, that is, the home market. If they vote for maintaining the National Policy, and for making that policy a more permanent fixture of industry, they will give this country a push forward on a career that will make it the envy of all other growing nations. They will thereby give a permanent security for adequate demand and good prices for the output of their fields, however their industry may overspread the fertile areas of the country. Now is the time for our farmers to beware of the cant of tariff reform, and to subject to the scrutiny of their common sense, all the propagandist stuff issued by the Laurierites masquerading as agricultural economists. The most fatal error that could be made in this time of reconstruction, in this time when the nations of the world are bent on guarding their home markets against raiding operations such as those by which Germany built up her immense foreign trade, would be for Canada to turn her face towards free trade. The farmers of the Western Grain Growers tariff demands would destroy the home market for farm staples at the time when the external markets are waning and beset by fierce competition. These tariff reformers take no account of the tremendous problems of finance that have to be solved in order to provide for our annual debt charges. They talk about the income tax being exploited, but where would the income be got if the farmers and manufacturing industries were left to their fate as these economists demand? This is the day of the builders up of Canada, not of the pullers down."

Globe, Toronto, January 30th.

"The manifesto of the Manufacturers' Association on the tariff leaves no room for doubt as to the attitude of the Association towards the removal of the war tax on imported goods. . . . The issue between the High-Tariff Manufacturers, who constitute but a relatively small proportion of the manufacturing interest of the Dominion, and the consumer, is put plainly in the manifesto. An indefinite delay in tariff revision is proposed permitting the continuance of a fiscal system under which three-quarters of the taxation of the country is to be drawn from customs and war taxes upon imported goods and raw material. A system of taxation so one-sided cannot be continued indefinitely. It oppresses the poor and unduly favors the rich, because the taxation is levied most heavily on food, clothing and household utensils which are as necessary in the homes of the poor as of the rich. . . . The conditions admitted by the Manufacturers' Association in its statement, that customs taxation on consumption yields over 75 per cent. of all our Federal revenue from taxes, ought not to be continued indefinitely. They stifle Canadian enterprise and overload the shoulders of the breadwinner in humble circumstances upon whom customs taxation falls relatively far more heavily than the well-to-do."

The News, Toronto, January 30th, 1919.

"The men who are clamouring for immediate and revolutionary changes in our method of raising revenue and stimulating home industry, are forgetful of the fact that we have lived under the present system for forty years, and have seen Canada rise to an enviable position in the regard of the world. Even in normal times a sudden change to free trade would strain to the danger point the resilience of Canadian business. Now, with reconstruction upon us, such a change would be nothing short of disastrous. Moderate men generally, whether they agree or disagree with the aims and objects of the Canadian Manufacturers Association will admit that their statement is reasonable and convincing."

Telegram, Toronto, January 29th.

"All history teaches that agricultural labour achieves its highest prosperity in association with industrial labour. Protection has to struggle against the stupidity of the Canadian Manufacturers Association and the greater stupidity of the *Globe-Star* section of the Union Government membership and following. But protection is right despite the advocacy of the *Financial Post*, and free trade is wrong despite the advocacy of the Toronto *Globe* and *Star*."

The World, Toronto, January 29th.

"The Western farmers and Western papers and their Eastern friends, like the *Globe*, *Toronto Star*, and *London Advertiser*, have had the boards now for some weeks. The Canadian Manufacturers have made their first official reply in a statement published elsewhere in this issue. It is worth reading. It shows that all the argument is not on one side; that the proposal to substitute free trade for a tariff that gives revenue and encouragement to home industries, and a home market for farmers, is acceptable to the minds of the majority of Canadians. But sooner or later there must be tariff revision, but the Manufacturers do not think that these days of reconstruction is the fitting moment to take it in hand. He who would abolish the tariff must find a revenue. The western farmers have this question on their hands."

The Star, Toronto, January 31st, 1919.

"Not long ago the Western Grain Growers drew up a series of demands for sweeping changes in the tariff. The Canadian Manufacturers Association through its General Manager has now issued a reply, arguing strongly and at length against any such change in the tariff policy. All over Canada people have read, or will read, the rival and conflicting opinions, and each man according to his interests and sympathies will proceed to range himself on one side or the other. People everywhere will take up the argument where these published documents leave off. Disputes carried on at long range by disputants each bent on making his own case

look well and the other as bad as possible, result in nothing but the hardening of the lines of difference and quarrel. . . . The contention of the manufacturers is that although the tariff needs revision, no change should be made in it without the most careful consideration of the effect of these changes on the whole of the country's industries. The grain growers of the West and the agriculturists elsewhere would not be content with revision of the tariff, whether considered carefully or not. They want something in the way of a new deal. Unless there is to be irreccncilable conflict between two of the greatest interests in Canada, that of agriculture and manufacturing, it seems necessary that the Government should bring those two interests together in an endeavor to end long range disputes, which can accomplish nothing, but widen the differences of opinion that already exist, and to discuss the whole situation as a matter of business that must be adjusted somehow, and ought to be worked out in such a way as to give something like a square deal all round."

The Herald, Hamilton, January 29th, 1919.

"In reply to the Organized Grain Growers of the West, and also farmers organizations in Eastern Canada, the Canadian Manufacturers Association has made a statement for publication. The farmers demand free trade with the United States right away, and also with Britain within a short time—the breaking down of all tariff barriers. The manufacturers hold, that even if such a policy for Canada were debatable, this is the worst possible time to agitate for it. And the manufacturers are in the right. Employers throughout the country are being urged officially and otherwise not to slacken operations, but to keep going in order to ease the pressure of unemployment, and especially to find work for returned soldiers. And at such a time the farmers are agitating for a policy which would spell ruin for many manufacturers, death to many industries, and continued unemployment to thousands of Canadian workers.

"Capital is proverbially timid and with a free trade agitation afoot, with a prospect that it may succeed, mighty little capital is likely to be invested either in new industries or in the expansion of old ones."

The News Record, Kitchener, January 31st, 1919.

"In its reply to the Western Grain Growers the Canadian Manufacturers Association took a reasonable attitude. Under the policy of protection Canada has since 1878, made continuous progress both agriculturally and industrially. The capable manner in which it shouldered and carried war responsibility was proof positive of the country's soundness. . . . It is reasonable to assert that the policy which has been tested and found under existing conditions to be reliable, should not, until something better is presented, be abandoned. The Canadian Manufacturers Association recognizes that the tariff has not been revised since 1907. It admits that there may be items in it which call for readjustment, but contends that it would be damaging to the country's best interest to tinker with it for a year or so. And that when it is considered, the revision should be scientifically made and every interest affected given a hearing. The world is in a state of flux. Industrial nations are preparing themselves for the new era on whose threshold they now stand. Competition for trade is likely to become keener than ever, first leading them to protect their own people from outside encroachment. It was announced yesterday that Great Britain intends to restrict imports by means of licenses. This is protection under another name. Until other countries have adopted new fiscal policies or rehabilitated their present ones it would be unwise for Canada to level its tariff wall. Its paramount duty is to protect its own households. . . . While the Grain Growers may view the tariff solely from the angle of importing farm machinery free of duty, the tariff to one-half of Canada's population means work and business. With the problem before us of gathering more revenue from a lessening volume of trade coupled with the necessity of providing employment for all who are able and willing to work, it would be disastrous to every interest in the country to make an assault upon the tariff."

The Herald, Guelph, January 31st, 1919.

"The Canadian manufacturers have reason on their side when they argue in reply to the Western Grain Growers' demand for free trade, that even if such a policy for Canada were debatable, this is the worst possible time to agitate for it. At a time when capital is particularly nervous, industrial occupation in the remaking, and the need for employment really acute, requests that would completely unsettle and disrupt the manufacturing interests are in the worst possible taste. It would be a cruel blow to all the interests of this country if Canadian manufacturers were to shorten sail now. Is not a truce possible between the free traders and protectionists during reconstruction? Surely it is possible to secure unity until the country is back on a peace footing."

The Free Press, London, January 30th, 1919.

"The Canadian Manufacturers Association has issued a statement of the case for industrial enterprise in this country. The machinists at Winnipeg have proposed a six-hour day. The farmers of the wheat lands of the West want free trade. Altogether it looks like a rather mixed state of affairs with which to begin reconstruction. The simple fact of the matter is that we have got to get together in this country. There is no other way out. If we are going to fight over theories and conditions, and if with the expenses of a great war to meet, and the competition of a world hungry for business and much in need of money to contend against, we are going to quarrel, the outlook is not good."

The Citizen, Ottawa, January 30th, 1919.

"The statement issued by the Canadian Manufacturers' Association replying to the platform of the organized Canadian farmers says that the tariff reform policy of the farmers will revolutionize our present fiscal system. There is nothing to be afraid of in this reference to a possible fiscal revolution in Canada. People should be prepared for it, young people especially; for the time must undoubtedly come when Canada will be again a young man's country, emancipated from the control of old men who staked everything on a belief in city industries. . . . Whatever the outcome may be, the organized farmers should press forward with their educational propaganda. There can be nothing to fear from a policy of free trade with Great Britain in five years, and of the other proposed fiscal reforms in the platform of the Canadian Council of Agriculture, provided that Canada is ready to become a young man's country again."

The Beacon, Stratford, January 31st 1919.

"The Manufacturers Association does not want any disturbance in the trade of the country which would be caused by a discussion on the tariff. . . . The demands of the farmers for a reduction of tariff generally, especially on British goods, for increase of reciprocity with the United States, free farm implements, and so on, have made it appear that discretion would be the greater part of valour, and the Canadian Manufacturers Association thinks it would be better to postpone this until other questions of reconstruction arising out of the war are settled. Higher tariff or lower tariff will have to be settled sooner or later. Perhaps it is just as well to let it go over for the coming session. We have got along during the last few years and will probably get along for another period."

The Journal, Ottawa, February 5th, 1919.

"When the Canadian Manufacturers' Association declares that the existing tariff scale is necessary, the strength of their declaration depends upon what they think it to be necessary for. If they maintain that it is required as a producer of needed extra revenue until the period of demobilization is passed, then a great many will agree with them, but if they merely claim the present scale to be necessary for purposes of protection, then they are treading upon highly controversial ground."

QUEBEC

La Patrie, Montreal, January 29th.

"Entre les demandes des agriculteurs de l'ouest et de l'Ontario et le memoire que vient le publier l'Association des Manufacturiers canadiens, le gouvernement federal est place dans un embarrassant dilemme. Le Conseil national d'Agriculture, representant la classe agricole, a formulé des demandes radicales. Il réclame des réductions graduelles qui conduiraient à la suppression complète du tarif de douanes en cinq ou dis ans. Sans doute, il demande plus pour obtenir moins, mais encore s'attend-il à recevoir quelque crose de substantiel. D'un autre côté les manufacturiers s'opposent absolument a tout changement au tariff et ne se montrent disposés a aucun compromis."

The Star, Montreal, February 5th, 1919.

"In this time of critical readjustment when scores of thousands are already out of employment in every big city in Canada, he is an inconsiderate citizen who would precipitately run the risk of intensifying this condition without a little preliminary pro and con investigation.

"The Legislative Assembly of Saskatchewan is making an appeal to the Governor-General of the Dominion for an immediate and substantial all-round reduction of the customs tariff. Their professed motive is to secure a square deal for the farmer. But neither they nor the Dominion Government know at present precisely what constitutes a square deal, either to the farmer or to the manufacturer.

"Let us get at the facts, promptly, radically and in a spirit of justice, beginning first with the necessities of agricultural production. Let us work out a new national policy based upon the new national needs and free from the old shibboleths."

The Gazette, Montreal, January 30th, 1919.

"Were the insuperable difficulty of lack of time for comprehensive study of schedules removed, the objection to immediate revision remains that the circumstances are not opportune. The trade in industrial employment the world over has been unsettled by four years of war abruptly terminated. Labor, after being constituted on a war basis, is suddenly deprived of occupation, and until the transition to a peace footing is accomplished there will be much unemployment. We have it now. No problem presses more acutely than that of labor, the restless state of which is manifested paradoxically in strikes for higher wages co-incident with a superabundance of workmen. In such a condition it surely would be nothing short of madness to apply a Fiscal Policy whose consequences will be an increase in the number of unemployed. Canada does not want closed factories and long bread lines in her cities and towns. The Manufacturers' Association pertinently puts the question, 'How can the commercial interests make plans to provide employment if they fear that the ground may suddenly shift beneath their feet? How can they continue the struggle to maintain and develop an export trade, a course which is being strongly urged upon them, if the Canadian market is suddenly invaded by competitors from other countries?' Of all times, that in which there is unrest of labor and temporary dislocation of industry is the least appropriate for legislation imperilling the stability of manufacturers. . . . Farmers in the Prairie Provinces frankly demand free imports, with the exception of a few articles upon which revenue duties will be levied. Their constitution is to unload the burden of the government on the wealthy classes unmindful of the fact that capital may be taxed out of existence, and indifferent to the value of a home market in which not less than eighty per cent. of farm products are consumed. After forty years' acceptance by both political parties of a moderate protective tariff, the fiscal question may have to be fought over again. But not now. A fire cannot be subdued by heaping on more fuel; and the incumbent task upon Parliament and Government is the restoration of returned soldiers to civil life and the provision of employment for idle munition workers. Tariff revision can wait. No class of the population is oppressed by the existing duties, least of all the farmer, whose toil has for four years reaped rich reward."

Financial Times, Montreal, February 1st.

"We have no interest in either free trade or protection. We have a great interest in a reasonable fiscal policy for Canada, and we hold that that policy should make it possible to continue the great majority of the various industries which have been established within this country within the last thirty years, and to add to them as the markets in the consuming capacity of the country are enlarged. We believe that the rates of tariff necessary to secure this object should become progressively lower as time goes on and the domestic market increases, and the one outstanding disability of the Canadian manufacturer—the smallness of the field for his products—is correspondingly diminished. We believe that the tariff schedules should be regularly overhauled by Parliament, since the power of taxation cannot be lodged anywhere else, but under the guidance of expert information prepared by a permanent body of investigators as far removed from political influence as possible; and that the tariff on each commodity should be limited to the amount necessary to offset the demonstrable disabilities under which Canadian producers would suffer if there were no tariff."

The Telegraph, Quebec, January 29th.

"The Canadian Manufacturers' Association believes that the country should concentrate on the one task of returning to peace conditions and leave the problem of tariff revision until—some other time! As we see it, however, it is quite impossible to concentrate on the one task of returning to peace conditions and yet ignore the tariff. Readjustment of the tariff is the foundation of any new system of reconstruction in this country; according to our tariff so must be the form of our industry. This is surely the psychological moment for deciding our fiscal future. In establishing peace conditions now we must determine also, our tariff future. It is as impossible to plan a permanent industrial life now without considering our tariff as it is for a soldier to plan his return to civil life without considering his occupation. The tariff is an integral feature of industrial reconstruction. It must be faced, and faced courageously, if we are to make anything worth while of the reconstruction period before us."

NOVA SCOTIA

The Record, Sydney, N.S., February 8th.

"The manifesto recently issued by the Canadian Manufacturers' Association in opposition to any changes in the Dominion Customs Tariff contained the statement that "Only a small percentage of the Canadian army came from the farms." There can be only two explanations for this piece

of action. Either there was unpardonable ignorance on the part of those responsible for the terms of the manifesto, or there is a deliberate attempt to prejudice the unthinking against the farmers because organized agriculture throughout the country is demanding tariff reduction."

The Post, Sydney, N.S., Feb. 6th, 1919.

"Nothing can be more obvious than that a renewal at the present time, when national reconstruction is the urgent and supreme problem before the country, of the acrimonious tariff controversies of the eighties and early nineties would be most disastrous to Canada. Nothing has been more frequently and more completely demonstrated than that tariff uncertainty is injurious to the commercial interests of any country. It would be doubly injurious to Canada just now in view of the fact that new world markets are opening up and new world channels being established. Though we are told that the race is not always to the swift, it is better to take no chances with time in the keen competition upon which the commercial nations of the world are now entering. If Canadian industrial products are to find their way promptly into the markets which are now offering, Canadian manufacturers must know at once the conditions under which they can produce, and they must be in a position to rely on the maintenance of these conditions for a reasonable period of time. In this regard the interest of the manufacturers is precisely identical with that of the hundreds of thousands of Canadian workers who earn their livelihood in industrial occupations."

MANITOBA

Manitoba Free Press, Winnipeg, January 30th.

"The statement published by the Canadian Manufacturers Association yesterday in reply to the tariff planks in the Farmers' Platform evinces no desire to find a middle way between high protection and free trade. It admits that a revision of the tariff is due, urges its postponement until after the reconstruction period, and claims that their services to the country and the Allies during the war entitle the manufacturers to a free hand in transforming Canadian industry back again from war to peace conditions. The proposal to postpone even this technical consideration of the tariff until after the period of reconstruction is over shows the manufacturers to be as blind as ever to the real implications of the present situation. . . . The complete lack of statesmanlike vision among the manufacturers makes more than ever imperative the discovery of it among the political leaders of the country. The farmers have spoken; the manufacturers have replied; and it remains for the Union Government, in its turn, to adumbrate a policy which will by firm reasonableness disarm the potential combatants and enable Canada to turn a united front towards the great task of meeting its obligations while building up a contented and prosperous community."

Grain Growers' Guide, Winnipeg, February 5th, 1919.

"The main argument which the Canadian Manufacturers Association advances against the tariff demands of the Farmers Platform is that the present is not a wise nor safe time to lower the tariff. This argument may be accepted as pure camouflage. So far as the manufacturers are concerned, there never was and never will be a time when they will be willing to lower the tariff in any way, shape or form. They want the tariff as high as they can get it and to be kept there as long as it is possible."

SASKATCHEWAN

Morning Leader, Regina, February 1st, 1919.

"The people of Canada have listened to many a wailing appeal from the manufacturers of Canada in the years that have elapsed since the Conservative party, away back in the seventies, committed this country to the pernicious policy of high tariff protection. During a period of over forty years every hint or suggestion of a reduction of tariff, no matter how small, or how restricted it may have been to a few items, has been the signal for the manufacturers to put up a poor mouth, and cry like the infants they at such times profess their industries to be. On other occasions, however, they puff themselves out and ask admiring people to gaze upon their strength and greatness, and the pre-eminent place they occupy in making Canada a nation and giving to it its present stability and prosperity. Canadian manufacturers are puny, weak infants when they are clamouring for favors, or when anything threatens them; but they are giants, bold and unafraid, when they are in a position to dictate to the Government and the masses of the people. It is questionable, however, if during all these years the manufacturers ever issued such a palpable dishonest, snivelling, disgusting appeal as that handed out this week by the General Manager of the Canadian Manufacturers Association by direction of the Executive Council of that body. It is worthy of the despicable, unspeakable Hun who, having plundered, destroyed and mutilated to the limit of his ability, throws up his hands when the hour of retribution comes, and like an arrant coward shrieks 'Kamerad! Kamerad'! The present wailing appeal of the manufacturers indicates how thoroughly frightened they have become on account of the rising tide of national indignation against the present high tariff which is robbing the people and draining the very life-blood of the nation into the pocket books and safety vaults of the big interest magnates."

ALBERTA

The Albertan, Calgary, January 30th, 1919.

"The Canadian manufacturers, richer than ever, are determined to defy the Government and the people. They have made a declaration of war and all hope of a better understanding or any sort of compromise must now be abandoned."

The Bulletin, Edmonton, February 1st, 1919.

"If the Canadian Manufacturers Association are really concerned about helping the Government to get revenue, their argument should be that the special war-time tariff should be continued only in respect to those classes of goods which were formerly on the free list, and which, as a matter of fact, were and are heavily imported. It is not the question of revenue from those classes of goods that the Canadian Manufacturers Association is concerned about. Their object is to have continued the privilege given them under war conditions to exploit the Canadian consumer by means of the extra seven and one-half per cent. protective tariff on goods protected so highly that importation is prevented."

The Herald, Calgary, January 31st, 1919.

"Canadian Manufacturers are much exercised over the lower tariff agitation now in progress throughout the Dominion among the farmers. In their perturbation, they have issued a statement which seeks to justify a continuance of existing tariff law without change over the whole period of readjustment. To the *Herald* this looks like bad business on the part of the manufacturers. There is no demand, even among the farmers of Western Canada, for immediate free trade. The greatest distance the Westerners have gone in this direction has been to call for an early reduction in the tariff, particularly as it affects farm machinery and products. While their ultimate goal may be free trade, they are not fools enough to insist upon the immediate attainment at the

expense of other interests. They are willing to move step by step. . . . Eastern manufacturers may as well make up their minds to it that Canada is due for a period of lower tariffs and freer trade arrangements with its world neighbors. This does not mean free trade or anything like it. What it does mean is that the tariff policy of the country must be figured on a broader basis than heretofore. In the past, the dominating influence at Ottawa, when tariff revision has been under consideration, has been the manufacturers. To-day agriculture, as a basic industry of the country, has assumed such proportions as calls for, and demands, fullest recognition."

The Herald, Lethbridge, February 4th, 1919.

"The Canadian Manufacturers Association declares that the present is the wrong time to talk tariff revision. Had the manufacturers intimated that they were prepared to accept a tariff revision downwards after the reconstruction period, tariff agitation might have ceased for the moment. There is no such encouragement, but rather there exists the feeling that the protected interests are merely using the reconstruction period as an excuse for delay. . . . There may be substantial reason for a tariff in Canada, but at no time should it be more than tariff for revenue. The bulk of our revenue should come from a direct tax. Tariff or revenue sounds well and is a good policy, but while it has been advocated it has not yet been given a real test in Canada. Our existing tariff is wholly protective, and a protective tariff means that we not only pay into the revenue of the country, but we pay an increased price to the manufacturer by reason of the protection he possesses against competition from the outside."

The Journal, Edmonton, January 31st, 1919.

"The *Journal* is much more interested in promoting prosperity of the farmers than in promoting that of the manufacturers of Canada. But it is chiefly interested at the moment in having the economic life of the Dominion as a whole make such an adjustment to peace conditions as will maintain our national stability. The process is bound to be a difficult one, and there is great peril in having any one element of our population put forward extreme claims. This being so, we are bound to support that part of the statement which was made yesterday on behalf of the Manufacturers Association in which it is urged that the highly controversial subject of tariff revision should be put aside till the immediate problems of reconstruction are settled. It was agreed by those whose attention was concentrated on the winning of the war that the fiscal issue should not be raised while the war was on. It is quite as important that we should keep it out of the political arena while business is being re-established on a peace basis and our fighting men are being returned to their ordinary pursuits. There are enough uncertainties to contend with already without having those created by a tariff revision added to them. Not only must the effect of specific industries, in which employment for the returned men may be found, be considered. The financial burdens of the Government are such that it has to act with care in cutting off sources of revenue. Whether for good or ill, the tariff has, up to the present, been the main source of Government income, and whatever changes in the system of raising this may be effected in the future, these must be introduced gradually and after due consideration. Precipitate action would most assuredly bring financial disaster in its train, and the great reconstruction programme that is being launched would have to be abandoned. These broad facts must be kept in mind by the people of the western provinces. They are becoming each year a more powerful political factor, and their wishes in regard to the tariff and other matters must eventually prevail. This result will be hastened by the moderation and the regard for the general interests which they show under the present trying conditions."

BRITISH COLUMBIA

The World, Vancouver, February 1st, 1919.

"Canadian Manufacturers ask Canadian grain growers, who demand a revision of the Canadian tariff, to postpone their offensive until the country has settled down once again to peace conditions. No doubt Canadian manufacturers are not moved solely by philanthropic impulses. But neither are the grain growers, so the honors are even. Nevertheless, there is much in the contention that the Canadian tariff should not be taken in hand this year and radically altered. Economic Canada at this moment is crossing a very deep stream. . . . During a series of years the commercial and industrial life of Canada has accommodated itself to this form of taxation. The business man has taken it into his reckoning; so has the farmer. If a sudden change were to be made at this juncture, when the Dominion is only beginning to return to normal economic conditions, it is hard to tell what losses and handicaps might be incurred. No doubt the tariff will be revised. For one thing the change on fiscal questions of public opinion in the Mother Country will have a certain effect in all the dominions. For another, the growth of the farmers' organizations and their political pressure will make itself felt. When the tariff comes to be revised, however, it should be done not at an abnormal time, but when the economic future to some degree can be foreseen. Furthermore, the changes should be based on a scientific survey of the economic needs of the nation as a whole, and not for the benefit of particular interests."

The Sun, Vancouver, Feb. 8th, 1919.

"British Columbia's interest in tariff revision is peculiar and different from that of any other province in the Dominion. Our principal exports have little or no market at home. Practically none of our mineral production is used here. We export both ores and metals of which we use none. We import metals of which we do not produce a pound. We export lumber and logs and use only a small fraction of our production at home. We import the greater proportion of our food, much of which should be produced at home. We export in growing quantities each year fruit to the prairie markets. We import nearly all our manufactured needs—shoes, clothing, vehicles and machinery. Most of our building material outside of lumber is imported. If British Columbia were to frame a tariff with an eye exclusively to her own interests it would provide for free bread, meat, clothes and shoes, free mining, sawmill, agricultural machinery and fishing equipment. We would probably impose a heavy tariff on imported fruit, and quarrel among ourselves about it. British Columbia's tariff interests come nearer to being free trade, perhaps, than those of any other province in Canada. Our exports have to meet the competition of free traders and high tariffers in the world's market while all the necessities we use from day to day are imported, as well as the machinery by which our exports are produced. But as part of the Dominion we have to pay our share of the tariff. It is no more than just, therefore, that British Columbia's interest in the prairie markets should be well considered. Those markets absorb a large proportion of our exported fruit and lumber. That is about the only advantage which Canada's tariff does, or probably can, confer upon British Columbia. The balance of advantages and drawbacks in Canada's tariff for this province is away on the wrong side of the ledger. These fcts should be kept in mind when the Government is considering the demands of the western farmers for tariff reduction. The prairie provinces are finding a large and growing market for dairy, poultry and meat products in British Columbia, all of which enjoy a measure of protection under the tariff, thus giving them an advantage over all outsiders."

Work of the Reconstruction Association

Scientific Investigation of Natural Resources to be Prosecuted in Manitoba and Alberta—Meeting of the General Executive of the Association in Montreal—Publicity Work—The Question of Double Taxation Taken Up

By SIR JOHN WILLISON

President, Canadian Reconstruction Association

THROUGHOUT the Dominion there is increasing realization of the necessity for scientific investigation of natural resources and practical stimulation of industrial development. Since its inception, these have been outstanding policies of the Canadian Reconstruction Association. Now, both Manitoba and Alberta are taking practical measures to put these policies into effect. In Alberta, the Provincial Government has established a Department of Industry under the Hon. A. G. MacKay. Its chief function will be to determine by investigation what industries can be successfully and profitably established in the Province and to encourage the development of natural resources. In Manitoba, after a conference between the Cabinet Ministers and representatives of the Manufacturers Association, the Industrial and Development Section of the Winnipeg Board of Trade, Lieut. J. W. Wilton, M.P.P., and others, the Government has decided to create a commission to investigate the natural resources of the Province and to encourage the establishment of industries. A motion presented to the House by Lieut. Wilton, embodying the Government's decision, was passed unanimously, though not without animated debate. Dr. A. W. Miles, Member for Cypress, contended that most of Lieut. Wilton's address in supporting his Bill was taken from speeches, pamphlets, and resolutions of the Canadian Reconstruction Association, "a bunch of stand-patting, high protectionists from eastern Canada." Premier Norris agreed with Dr. Myles that the Canadian Reconstruction Association was a body of high protectionists and contended that the progress which has been made in Canada during the last twenty years "has been made in spite of, and not because of the high tariff—and if the tariff is not soon scaled down to a tariff for revenue only, I cannot see any great progress for Canada for the future."

National Advertising Campaign

From east to west the Canadian Reconstruction Association is able to report satisfactory progress. All the district committees were represented at a meeting of the General Executive at Montreal, on February 1, and in every case the vice-presidents of the committees were able to present satisfactory reports on the work of their respective districts. The question of organization in British Columbia was referred to the Western Committee with authority to appoint a permanent secretary for that Province, if desired. The reception given to the policies of the Association by the press and public men on the Pacific Coast seems to assure the creation of a strong committee. In the east, a new Secretary, Mr. Guerin Normand, has been appointed to succeed Mr. C. W. McDiarmid, who has returned to active newspaper work.

With the sanction of the General Executive, a national advertising campaign has been undertaken by the Head Office, and advertisements are now appearing in daily newspapers and farmers' weeklies throughout the country. It is hoped that the public presentation of the policies and arguments of the Association may assist in steadying public opinion during the difficult period of reconstruction.

There has been steady expansion at the head office, and some additions to the staff. A number of special services are being inaugurated. These include an information service to members of the Association and newspaper editors, and a special industrial service prepared by the Investigation Department for particular trade groups. With the approval of the Central Executive, an article on "Bolshevism" received initial publication in *The Canadian Magazine*, and is now being republished in pamphlet form. Thirty thousand copies have been ordered. With a view to the publication of a special report on standardization and reduction of styles, the Investigation Department has written to a selected list of War Service Committees of United States industries asking for reports of their experiences. The Department is also making a special study of the agricultural implement situation, with respect to import duties and prices.

Double Taxation of Industry

A pamphlet on the organization of the Women's Committee, containing "A Unity Programme for Canadian Women." has been prepared and is being circulated by the Women's Department.

The Association has made arrangements for printing its smaller publications at the Head Office. It has been decided to change the character of the Progress Bulletin, which, in the future, will be issued in its present form and at shorter intervals.

As a result of inquiries by the Investigation Department, the Association, on January 24th, entered a protest at Washington against the suggested double taxation of Canadian branches of American firms. Six hundred copies of letters caling attention to the suggested legislation were sent to such branches, and a special press notice received publication in newspapers throughout the country. As a result of the Association's activities, there is reason to believe the suggested legislation will be abandoned. Upon receipt of our communication, Canadian branch industries immediately made their own representations to Washington, and many letters have been received thanking the Association for its action. The Association's telegram to Washington protesting against double taxation read in part:

"Such companies are subject to Canadian taxation, and if your Act is passed in its present form the result might be double taxation of Canadian branches. This would involve great hardship, and place an increased and substantial difficulty in the way of interchange of business between Canada and the United States, particularly if the Dominion Government should follow your lead. We believe that as companies incorporated under Canadian laws are protected by the Canadian Government, derive profits from Canadian trade, and are subject to Provincial and Municipal, as well as Federal taxation in Canada, and as profits from foreign business secured by such companies may be due in part to assistance from the Canadian Government and credits provided by the Canadian Treasury, taxation by the United States Government would be unfair. We respectively urge that business should be taxed only once, and that in the country where the business is carried on. This would not prevent taxation in the United States or Canada of parent companies in respect of any profits or income derived from foreign branches when such profits or income are brought into the country where the parent companies operate."

The circular letter sent out by the Association to the 600 branch companies, after calling attention to the proposed

legislation and recording the Association's protest to Washington, continued:

"The opinion of a prominent Canadian lawyer has been obtained and he advises, that while he doubts the legal right of Congress to tax companies incorporated under Canadian laws and operating in this country, he considers the wording of the Bill sufficiently broad to permit of a construction which would be decidedly opposed to Canadian interests. Moreover, telegraphic information from Washington states that there is reason to believe that it is the intention, if the Act passes in its present form, to assess Canadian companies if they be controlled in the United States.

"The matter has been called to the attention of Sir Thomas White, Minister of Finance, but any representations which he may make to Washington must be through diplomatic channels. This Association suggests that if your interests would be affected by such a construction of the United States Revenue Act as outlined above, you should take the matter under advisement at once and make representations to Washington on your own account. This Association is sending a copy of the enclosed telegram to the Canadian Bankers' Association and other national organizations in the Dominion, with the thought that they may desire to take similar action."

Extent of Canada's Manufacturing Industries

Results of the Census of Industry Taken in 1917 are Announced by the Dominion Bureau of Statistics—Figures Indicate an Important Expansion in the Two Years Between 1915 and 1917

(From Canadian Official Record)

THE Dominion Bureau of Statistics has completed its census of the manufacturers of Canada for the year 1917, and the preliminary totals are now available. The returns cover 34,380 establishments and show a remarkable development in this branch of Canadian industry when compared with the census of 1915 as summarized on the following table:—

	1917.	1915.	Increase.
Capital invested	$2,772,517,680	$1,994,103,272	$778,414,408
Employees on salaries. No.	73,598	52,683	20,951
Salaries paid	$95,983,506	$60,308,293	$35,675,213
Employees on wages (including piece-workers) No.	619,473	462,200	157,273
Wages paid	$457,245,456	$229,456,210	$227,789,246
Cost of materials	$1,602,820,631	$802,133,862	$800,686,769
Value of products	$3,015,506,869	$1,407,137,140	$1,608,369,729

Materials and Products

The gross value of goods made in Canada in 1917 amounted to $3,015,506,869, and the cost of materials was $1,602,820,631, leaving a net value added by the process of manufacture of $1,412,686,238, or $5,449,098 more than the gross value of production in 1915. The twenty leading industries with the gross and net values of their production are given below in order of precedence:—

	Gross value.	Net value.
Flour and grist mill products	$224,191,735	$40,604,799
Steel furnaces and rolling mills	170,679,000	62,040,044
Slaughtering and meat-packing	153,279,252	36,082,497
Log products	115,884,905	75,159,877
Munitions	112,866,838	70,240,235
Pulp and paper	96,340,324	61,627,462
Butter and cheese	85,731,339	13,719,662
Cars and car works	78,564,527	39,884,077
Bread, biscuits and confectionery	77,223,581	33,022,111
Sugar, refined	73,329,260	20,149,349
Smelting	69,262,673	33,591,253
Foundry and machine shop products	66,945,483	43,322,282
Iron and steel products	58,797,766	26,777,534
Building and contracting	54,668,255	32,927,335
Automobiles	54,466,273	18,880,453
Slaughtering, not including meat-packing	53,441,466	14,771,901
Boots and shoes	49,170,062	22,389,519
Electric light and power	44,536,848	44,536,848
Leather, tanned, curried and finished	41,117,128	14,492,651
Electric apparatus and supplies	40,204,245	20,046,238

The totals of the twenty leading industries in gross and net value of production were $1,720,700,960 and $724,266,227 and they represent respectively 57 per cent. and 51 per cent. of the grand totals for the Dominion.

Agencies of Production

Capital.—The total capital invested in Canadian industrial plants in 1917 was $2,772,517,680, of which (a) land, buildings and fixtures amounted to $998,351,070, (b) machinery and tools to $567,262,538, (c) materials on hand, stocks in process, finished products, fuel and miscellaneous supplies to $745,546,310, and (d) cash, accounts, and bills receivable to $461,357,762.

The amount of capital invested in the leading industries was (1) electric light and power, $356,004,168; (2) pulp and paper, $186,787,405; (3) log products, $149,266,019; (4) cars and car works, $98,274,585; (5) steel furnaces and rolling mills, $91,894,777; (6) flour and grist mill products, $72,573,982; (7) agricultural implements, $70,493,801; (8) foundry and machine shop products, $69,915,032; (9) car repair shops, $68,763,298; (10) slaughtering and meat-packing, $68,145,347.

Employees, salaries and wages.—The number of salaried employees was 73,598, of whom 57,668 were males and 15,930 females, and the total amount paid in salaries was $95,983,506. Employees on wages, exclusive of outside piece-workers, numbered 602,632, of whom 489,915 were males and 112,717 females, and they received wages amounting to $449,548,644. Piece-workers employed outside of establishments were 7,755 males and 9,086 females who received a total payment of $7,696,812.

Millions Spent on Fuel

Fuel used.—The total cost of all fuel used during the year was $73,087,840. The quantity of bituminous coal used amounted to 7,568,499 tons, worth $39,688,856; anthracite coal, 410,705 tons, valued at $2,894,186; coke, 2,079,965 tons, valued at $16,122,122; gasolene, 3,158,895 gallons, valued at $859,775; fuel oil, 88,746,824 gallons valued at $7,607,323; gas, natural or artificial, 92,815,369 m.c. ft., valued at $2,397,545, and other fuel to the value of $2,149,441.

Miscellaneous expenses.—The total amount paid for miscellaneous expenses during the year was $239,373,046, of which rent of offices, works, etc., amounted to $11,211,114, rent of power, $11,647,458; insurance premiums, $10,694,332; taxes, federal, provincial and municipal, $28,464,674; royalties, use of patents, etc., $2,041,715; advertising expenses, $9,929,162; travelling expenses, $13,135,337; ordinary repairs to buildings and machinery $36,058,038, and all other sundry expenses, $116,191,236.

Power employed.—The total actual horse-power used in all manufacturing plans was 3,667,269, of which steam engines totalling 746,461 h.p., gas engines, 52,223 h.p., gasolene engines, 20,928 h.p., water wheels, 2,062,496 h.p., water motors, 6,343 h.p., electric motors, 177,386 h.p., all other, 12,769 h.p., was generated by the establishments reporting, together with electric motors 520,830 h.p., and other power 67,833 h.p., by rented power.

Tactics Required to Secure Export Trade

There Should Be a Combination of Manufacturers Producing Similar Lines, so that the Expenses of Conducting Sales Campaigns Might Be Reduced to a Minimum—Particular Attention Should Be Paid to Publicity and to the Type of Representative Sent to Solicit Business in Foreign Countries

By GEORGE R. ARCHDEACON

General Manager, Canadian Hart Accumulator Co., Limited, St. Johns, P.Q.

FOR some considerable time past, through the energetic efforts of Sir John Willison, we have heard considerable discussion regarding the profound question of reconstruction after the war.

Whilst we have all been content to talk about this subject, it does not appear at this stage, that so very much has been accomplished with regard to reconstruction as applied to export trade conditions.

An English poet once wrote, "Who can England know who only England knows." Changing the word England to Canada, the above phrase aptly applies to this Dominion.

It is because all have hitherto been entirely engrossed with their own affairs that they have not been able to obtain the true perspective with regard to their Dominion.

It was necessary for some great national upheaval to occur which would result in bringing Canada into close contact and into active conflict with various other nationalities. This was brought about by the war and as a result we find to-day, after only the short experience of four and a half years, that Canadians are now, more than ever, considering Canada in a comparative degree, conjointly with the various other countries with which she has been brought into close contact.

Canada, therefore, can now, through a logical process of reasoning, based upon actual experiences and observations, compare herself, her national characteristics, her national resources, her business methods, and her political ideals, in fact, everything that goes to form, what we understand as a nation's characteristics, with those of other countries.

She is also enabled to compare ways and means by which she can make her entrance upon the markets of the world in as aggressive and as successful a manner as her soldiers made their entrance among the warring nations of the world.

Before Canada can earnestly engage herself successfully in an export trade of any vast dimensions, it is necessary that we should all fully realize precisely what an export trade actually represents.

Export Trade a Cut-Rate Trade

We must start off with the accepted belief that an export trade is strictly speaking a "cut-rate trade." Such belief must be based upon sound principles. Canada must, therefore, only *export* the merchandise she cannot use for herself within her own Dominion.

She must decide *not* to purchase any article manufactured outside the Dominion if such article can be manufactured within the Dominion.

If the Canadian people, therefore, adopt these principles, it then becomes necessary that the Canadian manufacturer should similarly adopt such principles as are necessary for the absolute co-ordination of the principles enunciated by Canada as a nation.

The Canadian manufacturer must in the first instance so reform his methods that the sign "MADE IN CANADA" shall represent an absolutely ideal achievement in the field of manufacture.

It is frequently stated that the Canadian people have no faith in Canadian manufactured products. As there is no smoke without fire, it is impossible to conceive that the Canadian people should have arrived at this belief without the said belief being based upon some very good foundation. We, therefore, must now accept two salient principles.

Two Salient Principles

(1) The Canadian people must henceforth place absolute reliance in Canada and adopt a patriotic outlook on Canada as a nation and apply all their sense of patriotism to the ultimate vindication and successful penetration of the Canadian nation.

(2) The Canadian manufacturer must consolidate the ideals of the Canadian people by so applying himself to scientific and technical research into methods and processes as will result in his obtaining greater efficiency. At the same time he must set for himself a high ideal, and must not allow any product to leave his plant which does not achieve this ideal in every particular. To enable the Canadian manufacturer to achieve ideals, it is necessary that the workers should adopt a different outlook regarding their labor.

All too frequently in the past men have been prone to accept any form of work with the mere object of tiding them over some period of financial difficulty. How seldom it has been, that men have actually been sufficiently interested in their jobs to try and make the product of their hands a standing testimonial to the efficiency, earnestness, and artistic ability of the workers.

Mr. Lloyd-George tells a story of an old Welsh cobbler who used to take pride in the fact and openly avow, "I make every pair of boots for the sum of 20 shillings and to the glory of God, and there isn't a finer pair of boots made in all Wales."

It is this ideal in achievement that the workers must strive for. To produce something in a mere impersonal manner has never yet resulted in any great achievement, either in science or in art. Without actually becoming inspired, a man can do work which he himself should be proud of.

To reform a man it is necessary to start with his grandfather. Consequently to bring about the necessary reformation in these ideas, it is necessary that some time be devoted to the consideration of establishing a system of apprenticeship for all skilled workers and so gradually build up the famous old guilds of skilled workers which have been the boast and pride of the workers throughout the whole of Europe.

If the manufacturer, therefore, is backed up by such a type of labor, the product of his plant will be capable of establishing itself in every part of the world.

Let us now consider the tactics which should be employed in the active sales campaign necessary for securing for Canada a reasonable proportion of the world's export trade.

As the author has lived and travelled in twelve different foreign countries, and has had the opportunity of studying the dominating characteristics of the various commercial nations of the world, it is without the slightest hesitation that he makes the folowing recommendations as highly essential and absolutely necessary for successfully promoting a campaign for the gaining of Canadian supremacy in these markets.

It has already been pointed out that an export trade is essentially a "cut-rate trade." We must not, therefore, fall into the mistake of placing our Canadian manufacturers in bitter competition with each other in foreign markets, thereby neutralizing the individual manufacturer's efforts in face of his common competitors.

It is necessary that the manufacturers who are engaged in producing some article which is not of an exclusive nature, should combine with manufacturers engaged in the production of similar articles, each manufacturer forming a unit in the combination of manufacturers, with the result that each manufacturer within this combine would be expected to subscribe, *pro rata*, his share towards the expenses of conducting the sales campaign which must be launched for the particular representation of his product. In turn this manufacturer would receive, *pro rata*, his share of the business resulting from the general activities of the combine.

It must be quite obvious that instead of each manufacturer running his own sales campaign and carrying a sales expense of anything up to 30 per cent., that sales expenses could be distributed amongst all the manufacturers within the combine and so reduce this expense to a minimum.

Such an action demands a certain amount of unselfishness on the part of the larger manufacturers who are more able to carry the burden of such heavy selling expenses. We must not forget, however, that our original intention was to develop, not the individual Canadian manufacturer, but to develop Canada as a nation.

The next step is to obtain the necessary banking facilities and arrangements for credits, this in conjunction with an adequate commercial intelligence bureau backed by a live consular service, which will afford the necessary precedence and prestige to our commercial attaches.

Manufacturers Should Pool Resources

To obtain all these co-ordinated efforts on our behalf, it is necessary that manufacturers pool their resources to a lesser or greater degree varying with the individual manufacturer and his particular product and interests.

Particular attention must be paid, however, in the initial stages of this campaign to the adequate publicity which should be given to the Canadian manufacturers interested in the movement. This is a point wherein the strictly limited experience in foreign affairs possessed by Canadian manufacturers, is likely to prove a pitfall.

As the continent of America represents the New World, so the inhabitants of the New World represent entirely new ideas. These ideas unfortunately, all too often happen to be in direct conflict with the ideas prevalent amongst the inhabitants of the Old World. It therefore becomes necessary for us to discard the somewhat brusque manner of drawing attention to our products, as exemplified in the forceful manner of the modern advertisement writer who flourishes in Canada and in the United States.

Another point to be constantly borne in mind is that all advertising matter must be written in the language of the people to whom you are making your appeal.

Probably the greatest "leap in the dark" that the Canadian manufacturer has to make, however, is in the choice of a representative to visit the various countries wherein he proposes to actively engage in commercial relations. The person chosen must be a complete departure from the average type of American or Canadian "drummer."

As the inhabitants of the Old World are so temperamentally different to the inhabitants of the New World, it necessarily follows that to obtain their sympathetic consideration, the ambassador of the Canadian manufacturer should be possessed of a temperament more in sympathy with them than is apparent in the average citizen of the Dominion. Of course, it is absolutely essential that the representative speak English and French, whilst a good knowledge of Spanish would help the situation along tremendously.

Special Fields to be Conquered

Let us now briefly turn our eyes to the special fields to be conquered. China, India, Africa, and Russia, are four principal markets which are crying out for development. Each of these countries have known the "Hun" and has lived to regret the predominating position he was permitted to gain in their midst.

In the vast territories of South America, we have awaiting opportunities amongst people who, though speaking a foreign tongue, are more closely related to us, owing to their geographical position than any of the above-mentioned countries.

Inasmuch as access to these southern countries is easy, we should without delay, make our descent upon them in force whilst the commercial activities in Europe are still in a disorganized condition.

Canada's annual export trade in pre-war days only amounted to $50,000,000.00. This comparatively small amount was suddenly augmented through the necessity of Europe during its hours of distress, to a total of $700,000,000. One does not like to admit that after Canada has vindicated herself in the markets of Europe to this extent, she would once again fall back to her old limits of a $50,000,000 export trade.

Just to what extent Canada intends to retain its suddenly acquired export trade, depends entirely upon the zeal, organization and patriotism of the Canadian manufacturer.

CANADIAN
TRADE INDEX
Copies of 1916 Edition Wanted

OWING to war conditions the supply of the Canadian Trade Index was practically exhausted before the new edition could be authorized. Some months will elapse before the new edition is off the press.

In the meantime requests for copies are pouring in from important buying sources and we are unable to supply the demand. We will appreciate it deeply if any members have an extra copy of the 1916-18 edition they will send to us.

Copies should be addressed
COMMERCIAL INTELLIGENCE DEPARTMENT
Canadian Manufacturers Association
1404 Traders Bank Building TORONTO, ONT.
We Will Pay Express or Remit Postage

Housecleaning the Sales Department

What One Firm Learned During a Reorganization of its Sales Force—Objections to a "Straight Commission" Salesman—Question of Remuneration and the Basis on which it Should be Made—Compilation of Sales Statistics

By ROBERT ARKELL

Of Thorne, Mulholland, Howson and McPherson, Industrial Advisors, Toronto

TEN years ago the Blank Company could number its competitors on one hand. Orders were easy to get and the margin of profit was large. A year ago a list of manufacturers of that line contained a score of names and in the meantime the Blank Company's sales had dropped so low it now suffered a loss. To cut a long story short, a reorganization was decided upon and the first executive to bid farewell to the directors was the sales manager.

For a week the new sales manager did not leave his office. Around him were page upon page of statistics. In front of him were three sheets of foolscap, each headed with a different question. The first read: How many men on the road for us are salesmen? Below it appeared but two names. The second: How many are order takers or so-called travellers? Six more names followed this. And the third asked: How many "cripples" are there now out for us? Four men were listed here. How did the new sales manager arrive at these deductions? He knew his "line." He knew his territories. Personalities were discarded. Each salesman was being judged by results alone. No vague promises or excuses entered into the question. "What is your record?" was all that confronted each name.

Later on the second class were asked for a personal interview and within three months four of the six "order takers" had to be promoted into class one. The other two had to start "travelling" at someone else's expense.

Different Kinds of Cripples

What did he mean by "cripples?" you may ask. Perhaps the particulars of each case in class three would answer better. The first man was on a straight commission basis and carried a side line "on the sly." He was absolutely convinced that he could not obtain more business than he did and consequently felt justified in splitting his time with another house. The second "cripple" did a very good business, if dollars and cents only were considered, but the territory he was working should have yielded twice his present sales. He was one of those men who want a large territory so they will not have to work the smaller towns. It requires ability to make it profitable to drop off at some of these country stations, and he refused to exert himself. The third one was an "office" salesman. If customers would come to him he could and did sell them a nice bill of goods, but "chasing" business was not in his line and nothing could change his attitude. The fourth and last was one of those "canny" salesmen who are afraid of running their sales too high because the firm might cut their bonus or reduce the size of their territory. At any rate, he was satisfied with the remuneration he was receiving, so "why not," he reasoned, "leave well enough alone"?

The immediate problem of the sales manager, therefore, was to secure six new salesmen—two to replace "order takers" and four for the "cripples'" territories. Should some of the younger men in the warehouse receive a chance to make good? Nothing holds an organization together better than promotion, and yet it would cost the firm a considerable sum to train them and wait for a connection to be formed. It was not simply a *change* that was required. *Improvement* was what was urgently needed. Obviously, then, the company could not afford to wait for results from untried men. It must secure thoroughly experienced salesmen with connections. But should they be "star" salesmen or medium-salaried men? The company had an exceptionally heavy overhead. Volume alone could reduce it per unit and that meant he was forced to make a bid for "big business." Where were such salesmen to be found?

Get Salesmen to Get Salesmen

If he were to put an advertisement in the newspaper under a box number he would not get enough of the right kind of applicants, as good men, as a general rule, look askance at "blind ads." On the other hand, if he stated the name of his company, the men he was anxious to secure would never think of offering their services to him, as it was generally known that the Blank Company was none too sound. It was, therefore, necessary to write each of his own salesmen and offer a bonus for each satisfactory applicant secured.

One of the salesmen who applied for one of the vacancies insisted upon a straight commission contract, with a guarantee of considerably more business than the Blank Company had ever received off the territory in question, but as commission contracts, where intensive salesmanship is concerned, is generally a questionable proposition, his application was rejected. In the first place, it was the sales manager's opinion that the greater the amount of business secured from a given territory, the smaller the expense ratio should be, but under a straight commission contract such an arrangement would be impossible. Again, a "straight commission" salesman is always inclinded to regard his time as his own, as when he is not working he is paying for his idleness himself. He forgets, however, that it is also costing the company something, as they lose the profit on all business which is dropped in this way as well as losing the saving in overhead on the increased business.

The Question of Remuneration

How much could he afford to pay the new salesman? he asked himself, but the question answered itself. It is not a question of what a salesman receives but what he earns. Some salesmen are cheap at $5,000.00 and a liberal expense account. Others are a liability at half that figure. The only point that he had to concern himself with was the securing of statistics from week to week and month to month as to the expense ratio.

The compilation of sales statistics has always been a bone of contention in most offices. Some sales managers require the most exhaustive analysis of the sales, both current and cumulative, and then file the information in a pretty loose-leaf binder. Others deride "red-tape," ask for only the most meagre of statistics and guess the rest. Neither of these types of sales managers are right. Where there are several departments, such as the Blank Company had, it is necessary to know the quantity of each line sold by each salesman to keep his orders properly balanced. Not long ago, a women's

ready-to-wear salesman, who carried skirts, dresses, waists and neckwear, was selling more dresses than any other two salesmen combined, but the other lines were almost untouched, for no other reason than that he thought it was easier to "enthuse" over his dress line than the others; besides, dresses being of more value than waists or skirts, the salesman believed that he was doing "big business" for the company, whereas the same value in the smaller lines would have been a great deal more profitable.

A New Chairman

Young Easterner Wins Success in the West and Now Heads Saskatoon Section

F. M. Beatty, who has been elected chairman of the Saskatoon Section of the Prairie Provinces Branch, is manager of the Saskatoon plant of Cushing Bros., Limited, Edmonton. Mr. Beatty came originally from Pembrooke, Ont., where he was born thirty-three years ago. After completing a business education in Ottawa, he worked for the Buckingham Planing Mill Co., Buckingham, P.Q., gaining practical experience in the mill. He then spent a year in the retail business in Latchford, going west in 1906 and locating in Edmonton, where he joined the staff of Cushing Bros., Limited. He became assistant manager in 1909, and when the company located their plant in Saskatoon in 1911, he was appointed manager. His is the story of a good many enterprising young easterners who have migrated to the west early in life and there climbed rapidly to positions of prominence. The Saskatoon Section is fortunate in having a live-wire like Mr. Beatty as its chairman.



F. M. Beatty
Chairman, Saskatoon Section

Work for University Men

University of Toronto Alumni Association Establishes a Bureau of Appointments

The University of Toronto Alumni Association has established a Bureau of Appointments after the manner of those in the large British and American universities. For the present this Bureau will concern itself chiefly with the task of finding employment for returned university men. A large percentage of the university-trained men who are returning from overseas are seeking employment in the business world, preferring this to less active professional work. Men with engineering, mathematical, and economic training, and others who have no special business instruction but who are fitted for general executive, secretarial, and salesmanship work, are being handled by the Bureau. An effort is also being made to provide temporary summer work for students who are earning their way through the university.

New Tariff Regulations

Commercial Samples Destined to United Kingdom

A ruling has been made by the United Kingdom authorities that *bona fide* commercial samples may be admitted into that country regardless of the import restrictions. Thus, *bona fide* commercial samples may be sent into the United Kingdom now without license, however imported, whether as baggage, by mail, express or freight.

Wall Paper—British Import Restrictions

British importers are permitted to import three-eighths of the quantity of wall, paper which they imported in 1916, irrespective of where the wall paper originates.

Removal of Australian Restrictions on Imports

The Australian Proclamation of November 10th, 1917, which prohibited the importation of certain articles made of tin plate, and goods when packed in tin plate containers, has been revoked, and these commoditions may now be imported into Australia without license.

(Official United States' Bulletin, Feb. 20th, 1919)

Protective Tariff for South Africa—Proposed Revision of Customs Tariff

The Board of Trade have been informed by H. M. Trade Commission in South Africa that it was recently stated by the Acting-Prime Minister of the Union (Mr. F. S. Malan) that an Advisory Committee had been instructed to draft a tariff of Customs duties which would enable South African industries to keep their heads above water and prevent the country from becoming a dumping-ground for other countries. To a certain extent the question of Revenue would be borne in mind, as hitherto, in framing the Tariff, but the maintenance of South African industries would be very largely kept in view.—(The Board of Trade Journal, London, England, February 6th, 1919)

KEEP US INFORMED

In the interests of your own individual plant and of Canadian industry at this crucial time, it is essential that every manufacturer keep the Commercial Intelligence Department of the Association informed as to representatives they may have in Europe or on the way there. We are particularly interested in representatives who are familiar with Canadian capability for production and approximate prices.

Any who have not already done so, kindly furnish the name and address of such representative to the

COMMERCIAL INTELLIGENCE DEPARTMENT

Canadian Manufacturers Association

Toronto

AMONG THE INDUSTRIES

Under this heading are published items of news of current interest concerning the activities of Canadian manufacturers. Information about changes of interest, enlargement of plants, and plans for future developments are welcome, and are published free of charge, provided they should not be properly classified as advertisements

***Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin**

ALBERTA

Calgary.—Work on the plant of the Alberta Flour Mills, Ltd., in the south-eastern section of the city limits, will be pressed forward as rapidly as possible in the spring, according to a statement by H. A. Ingram, elevator and mill contractor, who has charge of the construction work in this city at the present time. Plans have all been laid for this structure, which will cost about $3,500,000.

It is not impossible that a great iron industry may be the first to be passed upon by the newly created industrial branch of the provincial government. Action taken at a recent meeting bears directly on the development of the great iron ore bodies known to exist south-west of Calgary. The Dauntless Manufacturing Co., of Redcliff, has already completed a plant for the making of iron into steel and the creation of all kinds of steel products. Mining Engineer J. Rickert, of Calgary, is the discoverer of the extent of the iron deposits in the Sheep Creek country, adjacent to Calgary.

Lacombe.—Thompson Vulcanizing Works plan rebuilding factory, which was recently destroyed by fire.

BRITISH COLUMBIA

Vancouver.—C. H. Thornblade, president of the Pacific Welding Co., of Seattle, is in Vancouver for the purpose of securing a site to establish a welding plant here, which will represent an investment of between $60,000 and $75,000.

MANITOBA

Winnipeg.—The legislation committee of the city council have unanimously agreed to recommend that the city council seek power by reference to the ratepayers to erect a pulp and paper plant to cost three million dollars as a means of establishing permanent industries in Winnipeg. It is urged that employees of the mill be made part owners and have an interest in the actual earnings of the mill.

NOVA SCOTIA

New Glasgow.—The President of the Nova Scotia Steel & Coal Company states that it is the intention of the company to develop its Wabana mines on a scale that will put it into a position to enter the ore markets of the world. Extensions and improvements to the company's plans, as previously noted, are also to be carried out.

ONTARIO

Beachville.—Excavating has started for $15,000 addition to factory for Neilson Condensing Factory.

Belmont.—Canadian Milk Products plans extensive interior improvements costing $10,000.

Cobourg.—Members of a Rochester firm contemplate purchasing the Imperial Munition Board buildings with a view to remodelling the plant for the manufacture of essences and evaporated goods.

Galt.—Newlands & Co. and the Galt Robe Works have recently ordered machinery which will enable them to manufacture kimona and dressing-gown cloths, comfortables and robe sheet. For these goods there is said to be a good demand, to meet which the two Galt factories will be equipped to take care of the Canadian trade. It is also intended to largely increase the Turkish towel output.

Georgetown.—Operations at the plant of the Canada Needle Works, Limited, were commenced last month. This new company will manufacture latch needles for knitting machines, an article previously imported from Germany. The orders already booked are sufficient to keep the plant operating at full capacity for six months. Supplies of latch needles ran very low during the war, and it has been stated that the shortage of needles was more serious than that of either wool or dyestuffs. It has been stated that practically every mill in Canada has had a portion of its machinery standing idle on account of the lack of needles. The organizers of the Georgetown company are confident that there will be a steady market for knitting needles in Canada permanently, and that the product formerly imported from Central Europe can be satisfactorily supplied by domestic industry. The new enterprise is controlled by Georgetown investors, and about twenty-five skilled workers will be employed.

Guelph.—Flax spinning operations have begun here with the wet spinning of linen yarn up to 60 lea. It is hoped ultimately to spin yarns as fine as 80 lea, and both wet and dry spun tow yarns are expected to be turned out almost immediately. When additional machinery now being manufactured in Britain is set up in the Guelph plant, it is hoped to produce 1,000,000 lbs. of linen yarn a year.

Negotiations which have been in progress for some time for the purchase of the Guelph Stove Company, Limited, by one of the largest mercantile concerns in Toronto have been completed, and the plant has been turned over. The plant is a large one, situated on the York Road, and the purchase also involves the taking over of the old premises on Paisley Street, which have been vacant for some time. It is understood that there will be a big extension to the plant in the near future. Owing to the fact that the purchase of the plant and property also included all the patent rights owned by the company, it will continue to be known as the Guelph Stove Company, Limited.

The Partridge Rubber Co. will erect large extension to their factory. Plans have been prepared and tenders will be called shortly.

Hamilton.—A $75,000 addition is being made to the factory of the Imperial Cotton Co., Sherman Ave. North.

Plans and specifications are with the architect, E. B. Patterson, 143 Wentworth N., who is receiving tenders now for erection of $20,000 factory.

Plans are being prepared for $20,000 mattress factory for Morris Michnik, 172 Cannon St. W.

Hawkesbury.—Work will start in spring for foundry and machine shop for United Iron & Machine Co., Ltd., Haileybury.

Ingersoll.—The John Morrow Co. are making extensions to their plant, which will give greatly enlarged production. When additions are completed and machinery installed, it is likely there will be about 600 automatics in operation. A large cafeteria and rest room, especially for the women workers of the plant, is being provided.

The Ingersoll File Company, which will occupy a portion of the old Noxon plant, expect to be in operation shortly. They will start with 40 hands, but expect to increase the number to 125 inside the first year. The building to be occupied by the file works is in all 600 x 150 feet, making a total floor space of 90,000 square feet.

The southern postion of the Noxon plant is being overhauled to make way for the business of the T. E. Bissell Co. of Elora, who will operate both plants.

Kitchener.—An addition to their factory is planned by the Kaufman Rubber Co., 419 King St. West.

Leaside.—The Canada Wire and Cable Co. are at present preparing to install machinery in their big plant for the manufacture of wire cable.

Toronto.—Willard's Chocolates, Limited, will start shortly on the erection of a warehouse to cost $90,000.

The Northern Aluminum Co. are getting out plans for a ten-storey warehouse building on Sterling Road.

The Holden-Morgan Thread Millers, Ltd., has taken out a permit to build a $2,500 addition to factory on Hellingston Ave.

Thorold.—Fire has totally destroyed the Thorold basket factory. Loss estimated at $20,000.

QUEBEC

Cap de la Madeleine.—St. Maurice Paper Co. contemplates erection of $375,000 extension to paper mills and addition to office building. Manager, R. Louthood.

Montreal.—It was announced recently that Canadian Vickers, Ltd., Montreal, have just closed a contract with an important French group for the construction of one 8,300 dead weight tons, cargo steamer for the coal and nitrate trade between France and Chili. The vessel will be delivered completed, ready for service, in June this year.

Montreal Abattoirs, Limited, plan the erection of an abattoir costing $150,000.

St. Hyacinthe.—A $35,000 addition is to be made to the factory of L. O. Grothe, Limited, and work is to start at once.

Three Rivers.—The Wabasso Cotton Co. contemplate building addition to mills. Estimated cost, $300,000.

The international Paper Company of New York has decided upon the erection of a huge plant at this point. Six million dollars, it is said, will be spent on this paper plant, that will be in the very heart of the wood and pulp industry of the valley of the St. Maurice River, for years noted for its extensive log-driving operations. More than 3,000 workers will be employed there, and the entire plant will cover an area of 100 acres.

SASKATCHEWAN

Regina.—Construction work on the new factory of the Coca-Cola Co. has commenced. The factory is to be built on the east side of Cornwall Street between Eleventh and South Railway, the joint valuation of building and machinery being in the neigh-



CHEAP hydro-electric power, plenty of labor, a low, fixed assessment, low tax rate, cheap factory sites, exceptionally convenient shipping facilities by rail and water, all combine to make the City of Hull, Canada, an ideal location for industrial enterprises.

Hull is on the left bank of the famous Ottawa River, connected by bridges with Ottawa, the Capital City of Canada.

Within a radius of 2½ miles of Hull there is a population exceeding two hundred thousand.

Hull's Municipal tax rate is only 12½ mills on the dollar. Electric power is developed at the Chaudiere Falls in the city and is sold as low as $12.00 per h.p. per year.

The Municipality will grant 15 years fixed assessment on land occupied by factories and guarantee 15 years exemption from taxes on improvements. Water-front sites with privileges for private power development are available, as also are convenient railway sidings from the eleven steam railway lines which serve the city.

Get acquainted with Hull. Write us for full particulars of the advantages offered not only as a factory town, but as a place to *live* in.

W. F. Hadley
Industrial Commissioner
HULL, CANADA

Write for full details

FOREIGN TRADE OF CANADA

(Comparison 1917, 1918 and 1919.)

IMPORTATIONS.

	Month of January.			Ten Months Ending January.		
	1917.	1918.	1919.	1917.	1918.	1919.
Dutiable Goods	$39,855,400	$34,257,484	$42,950,589	$370,646,468	$460,976,855	$438,475,754
Free Goods	32,467,674	26,419,930	30,798,808	304,318,080	362,082,846	342,088,983
Total	$72,323,074	$60,677,414	$73,749,397	$674,964,548	$823,059,701	$780,564,737
Duty Collected	$12,762,621	$10,542,643	$12,519,929	$119,141,351	$136,339,474	$131,577,765

EXPORTATIONS.

Month of January.

	——1917——		——1918——		——1919——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic	Foreign.
The Mine	$6,836,464	$4,025	$5,528,992	$249,119	$9,471,539	$243,327
The Fisheries	2,784,824	106,940	3,390,587	87,074	3,942,558	146,259
The Forest	3,695,352	181,227	3,110,324	6,715	4,532,110	265
Animals and their Produce	11,745,761	1,114,120	15,918,079	1,522,927	20,902,496	1,067,365
Agricultural Products	22,550,924	938,014	26,390,294	310,227	32,839,568	6,235,107
Manufactures	50,814,082	768,248	41,383,115	1,230,299	44,425,357	1,116,133
Miscellaneous	678,852	333,233	494,893	123,539	244,759	167,913
Total Merchandise	$99,106,259	$3,445,807	$96,216,284	$3,529,900	$116,358,387	$8,976,369

EXPORTATIONS.

Ten Months Ending January.

	——1916——		——1917——		——1918——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$70,562,024	$206,740	$61,027,608	$952,104	$66,918,078	$2,821,316
The Fisheries	20,860,380	278,352	24,900,767	427,592	26,428,359	649,579
The Forest	49,833,800	486,214	45,622,438	57,818	60,580,724	38,886
Animals and their Produce	105,332,667	5,030,620	152,271,401	6,380,597	160,920,069	5,038,544
Agricultural Products	340,002,369	6,068,031	501,728,297	9,489,422	260,988,846	9,296,597
Manufactures	368,655,496	6,931,919	564,256,545	19,650,569	483,379,963	11,367,330
Miscellaneous	5,489,336	1,468,893	4,004,128	1,916,622	4,417,704	1,690,246
Total Merchandise	$960,736,072	$20,470,769	$1,353,811,184	$38,874,724	$1,063,633,743	$30,902,498

borhood of $100,000. The building will be a one-storey structure of Medicine Hat tile brick and will be erected by Carter Hall & Aldinger, of Winnipeg. The plant is expected to be completed and in operation by April 1.

The erection of a refining plant at a cost of $1,000,000 at Regina was announced last month by an official of the Continental Oil Co. An option has been taken on a 40-acre site in Regina. The first step will be to install equipment for the distillation of crude oil. Further additions to the refinery will be made as circumstances warrant. Crude oil will be brought to Regina from the Wyoming oil fields.

Melfort.—Saskatchewan Co-operative Creameries Ltd., will erect a cold storage and creamery plant, costing about $50,000. Site has been purchased and tenders will be called shortly.

Exports from the Dominion of Canada

The following regulations governing prohibited exports are in force from the 1st instant:—

1. For export to the United States, the United Kingdom, France (including Alsace and Lorraine), Belgium, Italy, Japan, and their possessions and protectorates, collectors of customs at ports of exit may, by endorsation of the usual shipper's export entries, license shipments of all commodities except the following:—

Gold and silver, wheat and oats, wheat flour and farina, butter, cheese, sugars, syrups and molasses, mill screenings and screenings of grain, canned salmon.

2. Individual licenses shall be required for export of the following goods to all destinations:—

Gold and silver, wheat and oats, wheat flour and farina, butter, cheese, sugars, syrups and molasses, mill screenings and screenings of grain, canned salmon.

3. Individual licenses shall also be required for all prohibited exports to destinations other than the United States, the United Kingdom, France (including Alsace and Lorraine), Belgium, Italy, Japan, and their possesions and proctectorates.

4. Applications for licenses to export gold and silver to be addressed to the Deputy Minister of Finance.

5. Applications for licenses to export wheat and oats shall be addressed to the Chairman, Board of Grain Supervisors, Winnipeg.

6. Applications for licenses to export all other foodstuffs except wheat and oats to be addressed to the Canada Food Board, Ottawa.

7. Applications for licenses to export all other goods shall be addressed to the War Trade Board, Ottawa.

8. Shipments of goods on the prohibited list, when the value of no one commodity exceeds $100, may be licensed by the endorsement of the collector of customs at the point of exit on the usual shippers' export entry.

9. In the case of shipments by parcel post when the value of no one commodity exceeds $100, postmasters may accept same for transmission without license.

FACTORIES FOR SALE

Two desirable plants, one at Mount Forest, constructed of brick, floorage over 40,000 square feet, formerly operated by Weir Wardrobe Co.; and the other at Guelph, stone, floorage over 50,000 square feet, formerly operated by Dominion Casket Co. Apply to:

Canada Furniture Manufacturers, Limited
WOODSTOCK, ONT.

Lighting Service for Every Manufacturer

¶ The most important word in business is *Service*. To serve well—to give just that little bit that is not in the specifications—*that* kind of service builds reputation, business, profits.

¶ The Benjamin policy is a service policy. Here we live in an atmosphere of lighting problems—problems that you have not the facilities and time to solve.

¶ From the plan of lighting to the choice of fixtures you will find the Benjamin idea of co-operation efficient, thorough and helpful.

¶ Let us tell you more about Benjamin service and Benjamin products for lighting industrial buildings. It is worth your while.

The entire plant of this Company is an example of the excellent service the Benjamin Company can render.



Carpenter Shop and Cooperage, International Nickel Co., Port Colborne

Benjamin Electric Mfg. Co. of Canada, Limited

HEAD OFFICE AND WORKS:

11-17 CHARLOTTE STREET, TORONTO

Catalogues and Booklets

New Tallman Stock List

A new stock list, dated February, 1919, has been issued by Tallman Brass & Metal Limited, Hamilton. The list gives prices and specifications of all the well-known Tallman products such as brass rod, copper rod, bronze rod, brass spring wire, round brass tubing, copper tubing, sheet brass, sheet copper, phosphor bronze, cored bars, pumps, electric fixtures and various miscellaneous items.

New Butterfield Catalogue

In compact form and with contents well condensed, comes a new catalogue, Number 17, of Butterfield & Co., Que., Rock Island, P.Q., covering taps, dies, screw plates and reamers. It is unquestionably one of the most complete and comprehensive catalogues covering these lines ever published and no manufacturer requiring any of these goods in his factory equipment should be without a copy. Full instructions are given regarding ordering and the catalogue is carefully indexed so that there is no difficulty in finding the various items that may be required. Needless to say the book is well illustrated and descriptions and prices are given in detail.

"5000 Facts" for 1919

That valuable little reference book, "5,000 Facts About Canada," which Frank Yeigh, the well-known writer and lecturer on the Dominion, compiles and publishes each year, has again made its appearance, revised and brought down to date. The booklet is a unique epitome of the trade, finances, manufacturing, marine, agricultural, dairying, mining, forestry and other Facts, and a striking revelation of our national growth in a year. An extra valuable feature this year is the chapter of War Facts, contaiinng the authoritative totals that people want to know, and that tell of Canada's part in the War in condensed form. In fact, this popular publication has been well termed a pocket cyclopedia of Canada, or the Dominion in a nutshell.

New Muller Catalogue

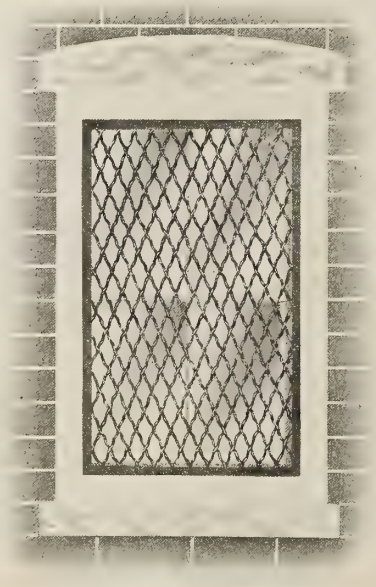
The H. Mueller Mfg. Co., Limited, Sarnia, state that their new general catalogue, comprising 300 pages and describing their line of water, gas and steam brass plumbing goods, is at present in the printers' hands and will be ready for distribution within a few weeks.

NURSE WANTS POSITION

A graduate nurse, with seven years' experience, wants position in emergency department of industrial concern, Toronto preferred. Best of references. Address, Nurse, 112 Winchester Street, Apartment 3, Toronto.

INDUSTRIAL COMMISSIONERS, ATTENTION!

Have you a vacant factory with ten to twenty thousand square feet floor space? Old established stove and furnace manufacturer, with all necessary machinery, patterns and equipment ready for immediate start, desires to locate in medium-sized town in Ontario, with good railway and power facilities. Would consider joining up with established grey iron foundry making light or medium castings. What have you to offer? Box 2000, INDUSTRIAL CANADA.



WINDOW GUARDS

For Stores, Warehouses, Factory Basement, etc. and all kinds of

WIRE WORK

Manufactured by

THE B. GREENING WIRE CO., Limited

Hamilton, Ont. *Montreal, Que.*

UNIQUE INDUSTRIAL SITES

—only 9 blocks from the retail business district of the Fourth City of Canada.

—tributary district affords ample supply of raw materials—product of land and sea—of forest, mines, etc.

—never-failing and abundant supply of fuel available at all times.

—wharfage for deep sea traffic—harbor open all the year round.

—industrial trackage to every site—affording connection with Canadian and States transcontinentals.

—ample supply of electric current for light and power—water and gas supply—full sewerage system.

These and other exceptional advantages are offered manufacturers on Industrial Island

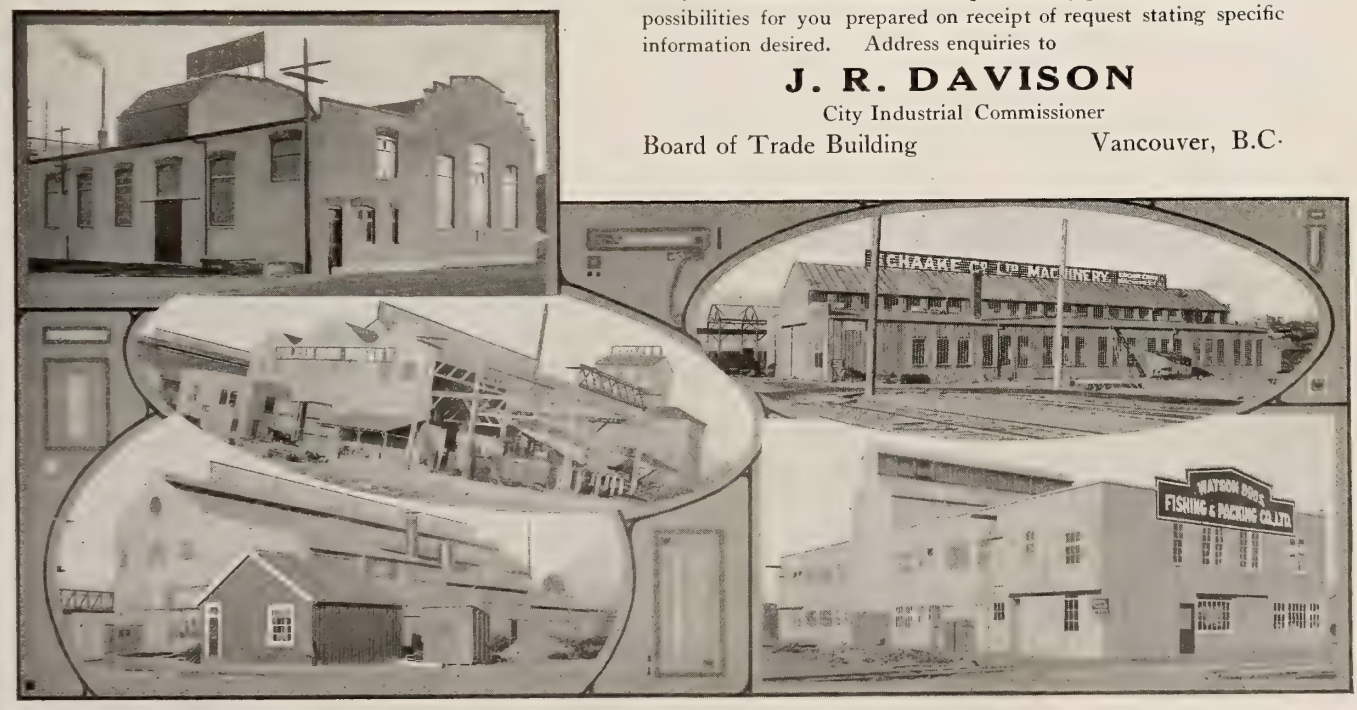
VANCOUVER
BRITISH COLUMBIA

This tract was reclaimed by the Vancouver Harbor Commission and especially equipped for the purpose of affording industrial sites. It is under the control of this Commission.

Sites available on long lease at low rental

Full, unbiassed and confidential report on any phase of Vancouver's possibilities for you prepared on receipt of request stating specific information desired. Address enquiries to

J. R. DAVISON
City Industrial Commissioner
Board of Trade Building Vancouver, B.C.



A few of the Industrial Plants on Industrial Island. Practically all of these have been erected during 1918



Pay-time disputes—the big cause of an abnormal "labor turn-over"

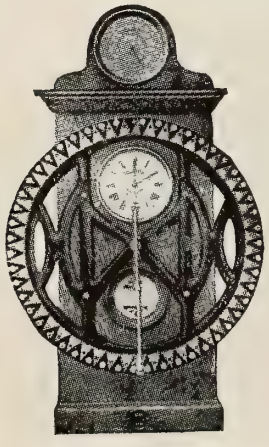
An industrial authority writes :

"Modern industry must employ a hundred and fifty to five hundred men every year in order to keep a hundred positions steadily filled."

You know, Mr. Employer, what a statement like that means in cold dollars. Among other things it means a dead loss in trained labor—and trained, very often, at your expense ! Can ***you*** afford it ? Can any business man ?

What is the chief reason and how can it best be prevented ? One of the big reasons is discontent due to "Time" disputes, and the best way to overcome this discontent is by installing

INTERNATIONAL TIME RECORDERS



A modern, efficient Time Meter

By making every worker his own time-keeper in his own time, you eliminate all possible chance of "soreness," and thus materially reduce your "labor turn-over."

Also, you increase "out-put," efficiency, self-respect and loyalty. Your workers ***know*** they are getting a square deal, and respond accordingly, while you know that your profits are being protected against loss through error in recording working time.

Let us send you our latest folders

International Business Machines Co., Limited

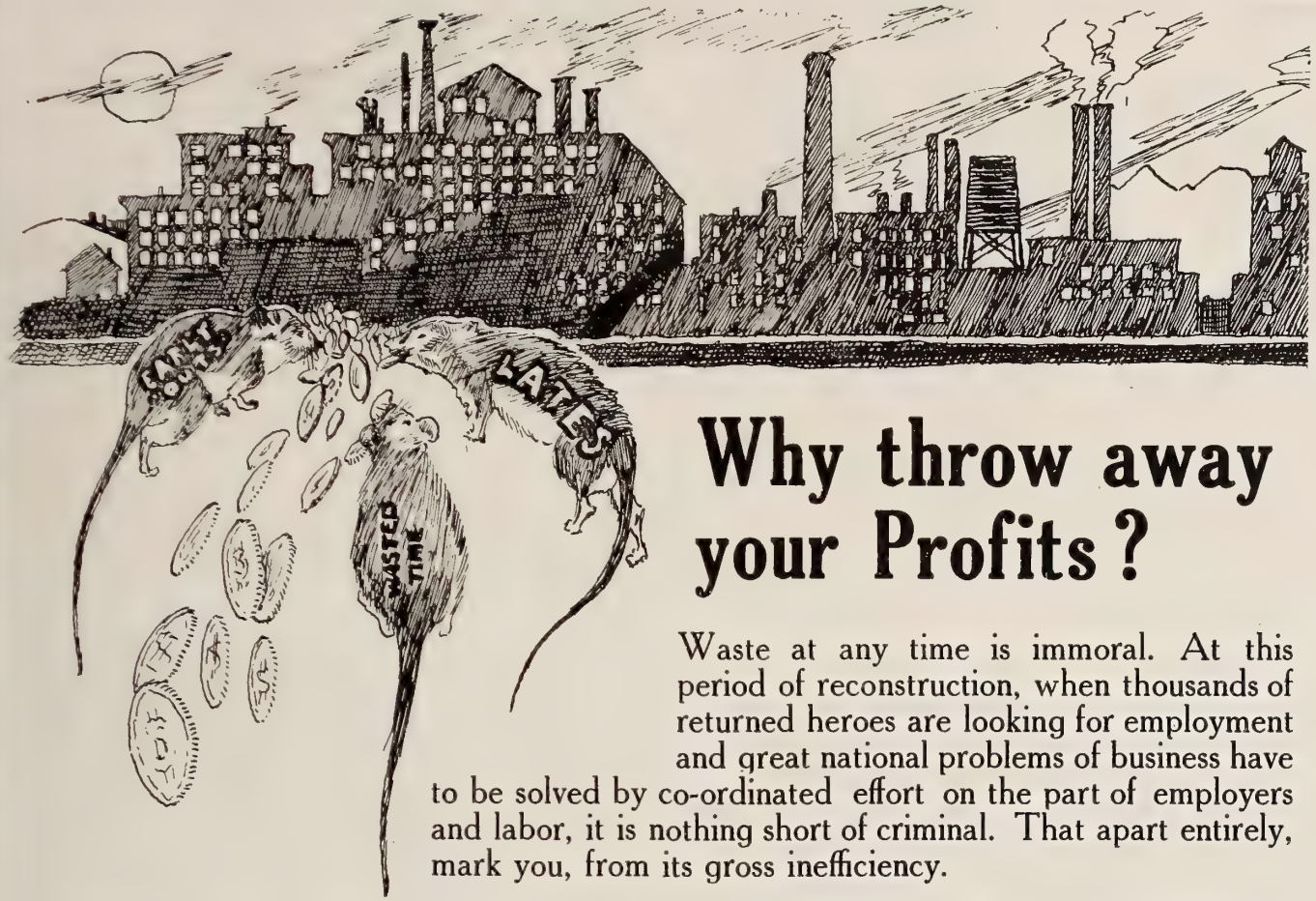
(TIME RECORDER DIVISION)

FRANK E. MUTTON, Vice-Pres. and Gen. Man.

TORONTO

Also at Montreal, Winnipeg, Vancouver

(Also makers of Dayton Automatic Scales and Hollerith Electric Tabulators)



Why throw away your Profits?

Waste at any time is immoral. At this period of reconstruction, when thousands of returned heroes are looking for employment and great national problems of business have to be solved by co-ordinated effort on the part of employers and labor, it is nothing short of criminal. That apart entirely, mark you, from its gross inefficiency.

Then why throw away your profits—those very profits that are the reward of industry and the foundation of greater prosperity?

Profits are wasted wherever there is an antiquated time-keeping system that permits of error, confusion and payment for time not given, and that breeds discontent.

Conserve your profits and give your working force the visible evidence of the "square deal" by installing

INTERNATIONAL TIME RECORDERS

They are made in Canada and are backed by intensive expert Service.

We supply 95% of the Time-Keeping Systems in use. Our lines include Time Recorders, Cost Recorders, Master Clocks, Secondary Clocks, Bell Ringing, Program and Whistle-Blowing Devices, etc.

Let us send our latest folders

International Business Machines Co. Limited

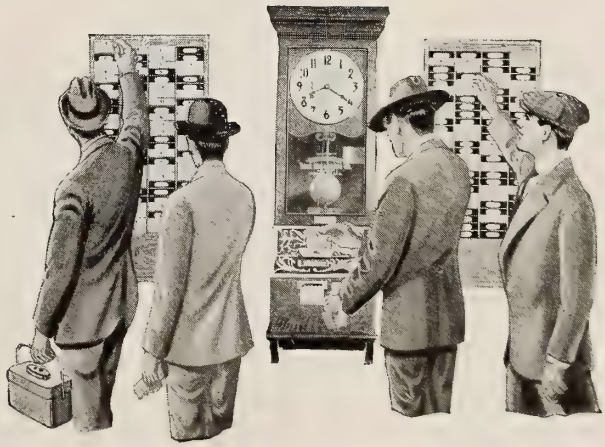
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FRANK E MUTTON, Vice-Pres. and Gen'l Mgr

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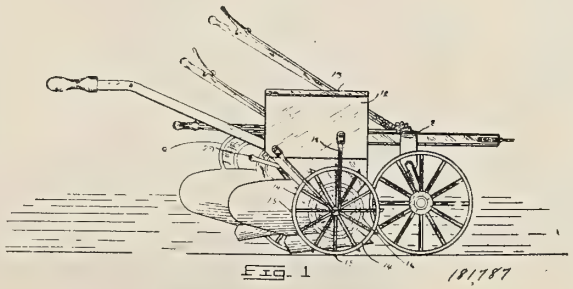
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A modern "Card Recorder." Every employee his own time-keeper.

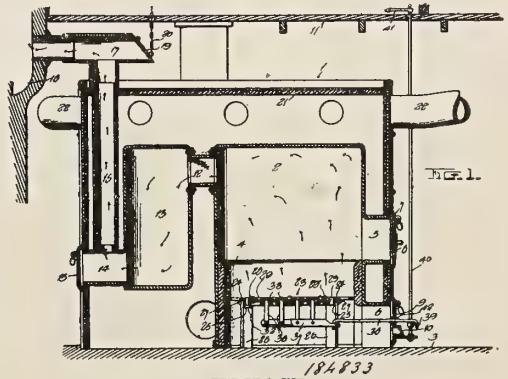
PATENTS FOR SALE

Patent applications through Harold C. Shipman & Co. Patent Attorneys - Ottawa, Canada



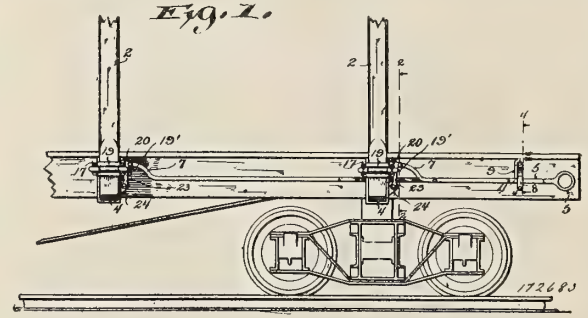
POTATO PLANTERS.

Above illustration relates to potato planters particularly adapted to be attached to gang plows. The invention is provided with a casing for holding the potatoes. Curved blades are attached to the wheel and act as separator for letting the potatoes out of the casing. Canadian patent No. 181,787 is for sale by Mr. John J. Thorgeirson, of Bredenbury, Saskatchewan, Canada.



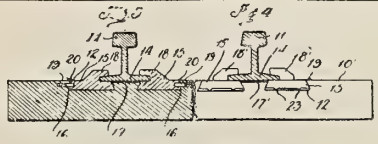
FURNACE.

Above illustrates improvements in furnaces, and provides a heater constructed to permit shaking the grate from the floor above. The furnace will run for two or three days after hopper being filled. Canadian patent No. 184,833 for sale by Mr. James A. Lazzell, 803 Central Ave., Columbus, Ind., U.S.A.



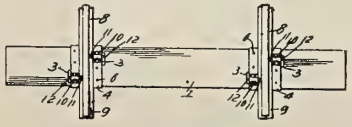
CAR STAKE POCKET.

This invention relates to logging cars, more particularly to pockets for stakes, whereby they release the stakes and permit the load to be easily discharged. U.S. and Canadian patents are held by Mr. Peter Nikolai, Box 304, Mellen, Wis., U.S.A.



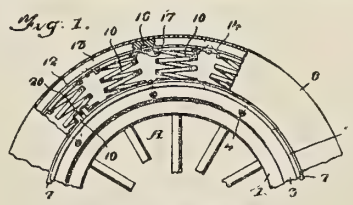
RAIL-FASTENER.

The above illustrates improvements in rail-fasteners, and provides a fastener that will be simple in construction, easy and inexpensive to manufacture, but at the same time possessing great strength and being adapted for the ready mounting of rails suitably spaced apart in their operative arrangement upon the roadbed. The device is provided with a latching securing means adapted for ready assembling, and eliminates the use of the usual bolts and spikes. Canadian patent No. 187,005, granted to Mr. Albert Remar, Box 84, Maynard, Ohio, U.S.A., is for sale.



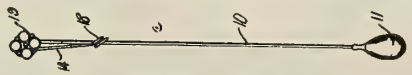
RAIL TIE.

Above illustrates an improved rail tie which is mounted on rail seating means so that the tie will have the characteristics of the usual wooden tie, and yield a slight extent when the rolling stock is passing. Canadian patent No. 187,915 is offered for sale by Mr. Robert T. Burrill, of Winchester, N.H., U.S.A.



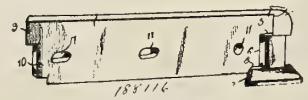
RESILIENT TIRE.

This invention has for its object to produce a mechanically resilient tire, thereby increasing the life and durability of the tire without decreasing the resiliency provided by the ordinary pneumatic tire. The invention is provided with a fixed rim and a resilient rim having a resilient tread mounted thereon and a novel arrangement of springs. Canadian patent rights are for sale by Mr. O. K. Purdy, Prescott, Wash., U.S.A.



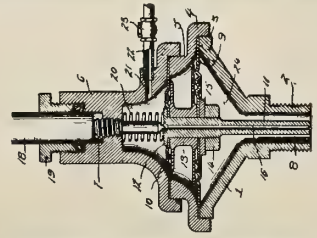
HAT PIN PROTECTOR.

This invention relates to hat pin protectors, and is one which will effectively protect the point, prevent injury to persons or fabrics, and prevents accidental displacement. This device is ornamental and inexpensive to manufacture. Canadian and United States patents granted to Mrs. Maud I. R. Flocker, 2647 Perrysville Ave., Pittsburg, Pa., U.S.A., are for sale.



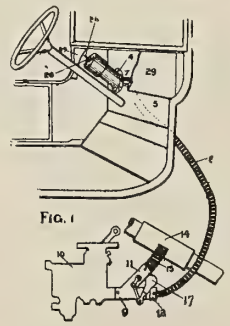
RAIL JOINT.

Above illustrates a new improvement in rail joints of the scarf type, whereby the possibility of pounding by the rolling stock passing thereover is substantially eliminated. Canadian patent No. 188,166 is for sale by Mr. Andrew J. Waltermire, Lock Box 466, Batesville, Ark., U.S.A.



LIQUID FUEL INJECTOR.

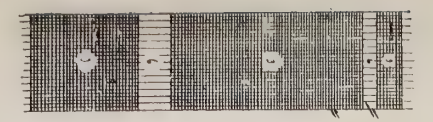
This construction relates to an internal combustion engine, and is so constructed as to communicate with the combustion chamber or directly to the main explosion chamber, to automatically inject a charge of liquid into the flaming charge. This invention could also be used for automatically injecting lubricant into the cylinders of steam or other engines. Canadian patent is for sale by Mr. Christian E. Liebenberg, P.O. Box 313, Philadelphia, Pa., U.S.A.



CARBURETTING APPARATUS.

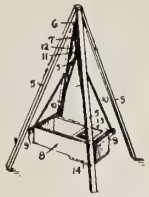
Above illustrates improvements in carburettors, and provides a device which may be used as a controlling device on any of the well-known makes of explosive engines. This carburettor eliminates imperfect carbonization and combustion which, as may be readily understood, is a fertile source of irregular action and loss of power. Canadian patent No. 182,496 granted to Mr. John C. Herrington, R. R. No. 1, Hilton, Ontario, Canada, is offered for sale or on royalty basis.

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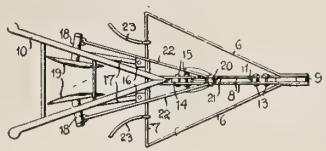
ADHESIVE PLASTERS AND TAPES.

United States and Canadian patents granted to Mr. C. W. Teed, of 112 Del. St., Walton, N.Y., U.S.A., on adhesive plasters and tapes, such as used by medical practitioners, and consists in making such appliances in which portions of the threads are omitted to form an open-work connection. The inventor is open to negotiate the sale of patent rights.



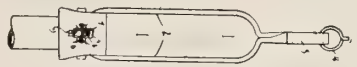
BABY JUMPER.

The Jessie M. Erwin Baby Jumper, which is a box seat suspended by a spring from the top of a tripod, affords amusement and exercise for the child and respite for the mother. Canadian patent No. 186,770 is held for sale by Mrs. Jessie M. Erwin, 2812 1st Avenue South, Billings, Montana, U.S.A.



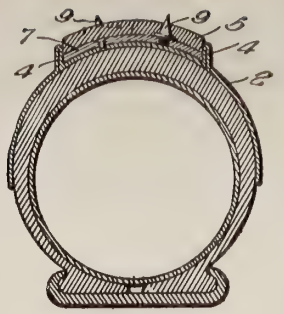
CULTIVATOR.

The above relates to improved cultivators and provides a machine for clearing the ground of obnoxious weeds. This machine is provided with a cutting disk, a plow shovel arranged rearwardly of the disk, cultivator disks arranged rearwardly of the shovel, and means to prevent the clogging of the disks. Canadian and United States patents are for sale by Mr. J. G. Hodges, R. F. D. No. 3, Osceola, Missouri, U.S.A.



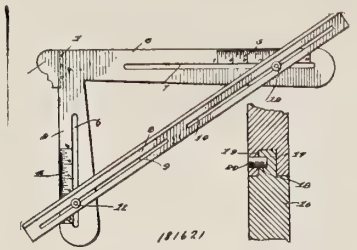
CLAMPING TOOL.

This invention is for extracting parts of the mechanism or tubes which become detached in the operation of boring wells. The article is so constructed that it will effect firm and rigid engagement with the detached part of the boring mechanism. Canadian patent is for sale by Mr. William Trippe, of Holstein, Mo., U.S.A.



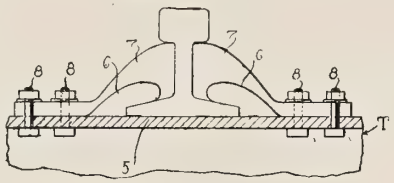
ARMOUR TIRE.

This invention relates to an improved armor or protector for pneumatic tires, and has a renewable resilient tread member which may be replaced when worn out. United States and Canadian patents are for sale by The Coan Armor Tire Co., 314 South West Boulevard, Kansas City, Mo., U.S.A.



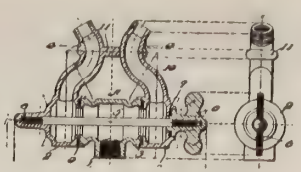
STAIR PROTRACTOR.

The above illustrated invention provides a stair protractor which may be adapted for lying all various types of stairways. The device is adapted for use where outer portion of the stairway is exposed to view and the inner edge is flushed with a wall or the like. Canadian patent is for sale by Mr. Charles W. Reveal, Drake, Ill., U.S.A.



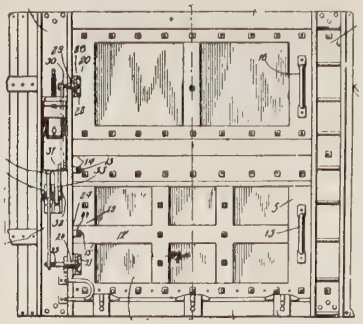
RAIL TIE AND FASTENER.

This invention relates to a new and useful improvement in rail ties and fasteners, to provide a steel rail tie and rail fastener combined. This invention is very simple in construction, and a great saver of labor and material. Canadian patent rights held by Mr. Philip C. L. Riegel, 512 N. Broadway Ave., Rochester, Minn., U.S.A., are offered for sale.



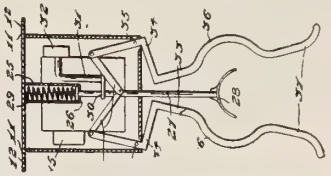
NOZZLE HEAD.

This construction relates to a body for supporting nozzles in any position required, the nozzle being adjustable and secured against displacement without the use of tools. Canadian patent No. 175,436 is for sale by Mr. Gilbert T. Mason, 48 Bedford Ave., Buffalo, N.Y., U.S.A.



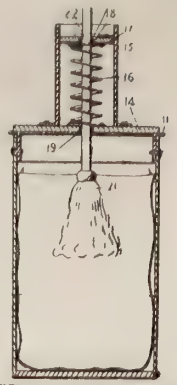
GRAIN CAR DOOR.

Illustrated above is an improved form of sectional door for Grain Cars, which can be readily opened, closed and securely locked with a new and improved locking mechanism, operated only by a substantial form of key. Canadian patent No. 180,644 has been granted to Mr. W. Layman, 1308 Brown St., West Fort William, Ontario, Canada



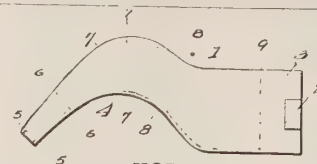
UMBRELLA LOCKING DEVICE.

This invention relates to umbrella locking device, and is particularly adapted for use in cafes, restaurants, hotels and similar public places. The objects of the invention are to render the device capable of being attached to the wall and any other place convenient to an umbrella stand, to secure the umbrella to the stand in such a manner that it cannot be removed by any unauthorized person, and to permit of the locking device being automatically closed when the umbrella is to be safeguarded against improper removal. Canadian patent No. 180,473 is offered for sale by the inventor, Miss J. A. Moore, through attorneys, Messrs. Harold C. Shipman & Co., Ottawa, Canada.



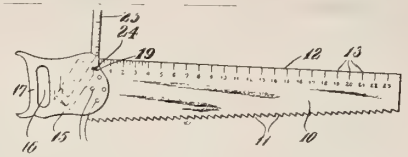
DUST MOP SHAKER.

Above illustration relates to Dust Mop Shakers, and consists of a large cylindrical metal canister. This canister is provided with an open mouth adapted to be closed by a telescoping cover. Bayonet slots are formed at opposite sides of the cover and are adapted to receive fixed lock pins which extend inwardly and form diametrically opposite sides of the can. Canadian patent No. 185,460 is offered for sale or royalty basis by Mr. George M. Bascom, R. D. No. 1, Box 454, Pasadena, Cal., U.S.A.



NOZZLE.

Above illustrates improvements in nozzles especially intended in aiding artificial respiration for newly-born infants. The instrument insures an absolute seal between an air pump and the larynx of the infant, and produces a variable supply of atmospheric air to an asphyxiated infant just born. Canadian and United States patent rights are offered for sale by Mr. Hubert H. Ramsay, Tylertown, Mississippi, U.S.A.



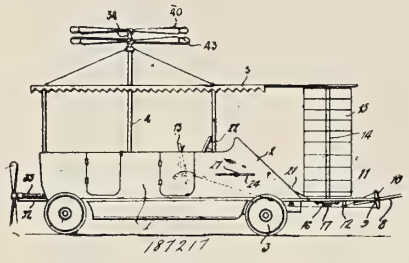
SAW.

The above illustrates improvements in carpenters' tools, the principal object is to provide a saw having a straight back, which may be graduated and having combined with the handle an upright element forming when in a direct operative position an angle of 90 degrees, whereby the blade may be used as a square. This unique article should prove very attractive to carpenters. Canadian and United States patent rights for sale or on royalty basis by Mr. Ludwig Buresch, R. 2, Emmett, Idaho, U.S.A.

(*Continued on next page.*)

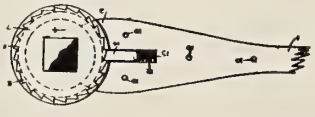
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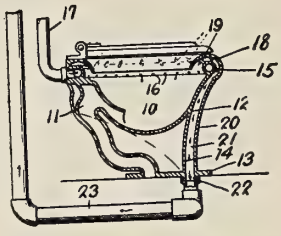
AIRSHIPS.

Canadian patent No. 187,217 granted to Mr. George W. Mann, Pierce City, Mo., on airships, can be used as ordinary motor vehicle, and has means whereby the machine can be readily guided under all conditions to travel along the ground, to ascend or descend at will. The machine is equipped with novel arrangement of planes adapted to be positioned against the car sides when desired to propel the machine along the road. Inventor is open to negotiate for selling of his patent rights.



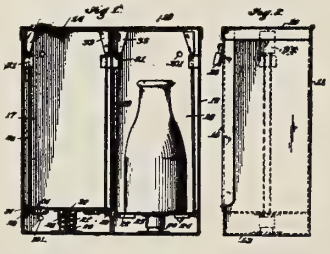
COMBINATION RATCHET-WRENCH.

Above illustrates ratchet wrenches and provides a combination wrench whereby a rotary cylindrical body portion having a square central opening extending through it, designed to receive a nut. This rotary cylindrical body is interchangeable with a body having a hexagonal centre opening to engage nuts and burrs of that particular type. Canadian patent No. 180,723 is for sale by Mr. Samuel A. Boosinger, 917 S. Rigby St., Youngstown, Ohio, U.S.A.



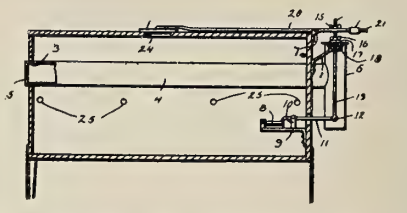
WATER-CLOSET BOWL.

The above illustrated construction relates to water-closet bowls, the principal object of which is to provide a means therein to permit the withdrawal therefrom of foul odors. It is provided with an annular chamber encircling the mouth of the bowl and in communication with the interior thereof, said chamber to be connected with a flue in which a natural or artificial draft exists. Canadian and United States patent rights are offered for sale by Mr. Louis Landmann, 1127 West Main St., Jefferson City, Mo. U.S.A.



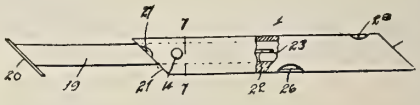
AUTOMATIC SAFETY DEPOSIT BOX.

The above illustrated construction relates to safety deposit boxes for bread and the like, adapted to be secured to the front of a house or any other suitable place, and which will prevent any unauthorized removal of goods deposited in the said box. The removal of the article will automatically unlock the locking device. Canadian patent No. 173,753, recently granted to Mr. Theodore Crossley, 10th and Market Sts., Riverside, Cal., U.S.A., is for sale or royalty.



HEATER FOR INCUBATORS.

Above illustrates heating attachment for incubators, brooders and the like, and the principal object of the invention is to provide an automatically controlled means for regulating the heat within the device. This article has been found to be very efficient in use and should prove attractive, being comparatively cheap to manufacture. Canadian patent No. 182,435 is offered for sale or on royalty basis by Mr. E. A. Swickart, Formoso, Kansas, U.S.A.



COMBINATION SQUARE AND BEVEL.

Construction illustrates improvements in carpenters' tools, and has for its object to provide a simple, practical and efficient device with a plurality of pivoted measuring arms to form a square and for marking off angles, and provided also with an extension bevel adapted for measuring braces between studding and the like. This simple device has been found to be very efficient in use, strong, durable and cheap to manufacture. Canadian and United States patents have recently been granted to Mr. John Daujat, Box 418, Napa, California, U.S.A.

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An Industrial Research Bureau for Alberta

Movement Has Taken Hold to Study and Promote Industrial Development of the Province—Bureau Will Ascertain Quantities of Various Manufactured Articles Used in the West and See Whether Domestic Products Could Not be Substituted—Government is Co-operating

By F. BLACKBURN
City Clerk, Medicine Hat

"WERE the natural resources of this Province developed to their utmost along industrial lines, Alberta would become the foremost industrial area of the Continent. We have coal unlimited, timber, gas, oil, chemicals of various kinds, grain of the best and other resources too numerous to mention."

Dr. Brett, Lieutenant-Governor of Alberta, thus concisely summed up the assets which give this Province such an advantage from an industrial point of view, when recently discussing the proposed establishment of a Provincial Industrial Organization.

"Why be content to develop along agricultural lines only, with such a wealth of natural resources practically untouched?" is a question which has been repeatedly asked, until Mayor Brown, of Medicine Hat, took the initiative, and in an address at the convention of the Union of Alberta Municipalities, held in the Gas City in October last, urged that practical steps be taken to ascertain the extent of the natural resources of the Province and how these can be utilized by the establishment of industrial plants. With this object in view he suggested the creation of a Provincial Industrial Organization under Government auspices.

The many theories advanced by eastern interests to discourage western industrial development, pointed out Mayor Brown, has been largely disproved by the results obtained and the success which had followed the initial industrial development in this country. Canada, he maintained, can ill afford to sit idly by while other nations of the world are making stupendous efforts and creating effective organization under state control to promote industrial expansion for the future. One point brought out by Mayor Brown is that we must not lose sight of the fact that if we are to retain our population we must in the west find and supply industrial employment for those of the rising generation whose inclinations run in this direction and who will seek to secure such employment elsewhere if same is not provided here.

Purposes of the Movement

At the present time the raw products of the soil and of the mines are being transported from the west to the south and east, reaching points varying in distance from one to three thousand miles, there to be manufactured and transported back over the same road and resold to the producer of the raw product with freight charges added for both hauls, plus the cost of manufacturing and making profits. The suggestion made by Mayor Brown, and which has now been acted upon, was that the Government of the Province create a department of industrial research with the object of ascertaining the quantities of various manufactured products used in the domestic markets of the west; from what points these products were manufactured and shipped; the freight rates and duties on such products; and the labor, fuel and power costs in production. Secondly, the bureau would investigate the supply of raw products found in Alberta and the west that could be used in the production of such manufactured articles; the freight rates prevailing and the cost of fuel and power used in their production. In short the research bureau will determine beyond reasonable doubt what class or type of industry would be assured of success in Alberta not only to supply the adjacent domestic market but also such foreign markets as might be reached and developed. These statistics and this information will be available to the various cities and towns in the Province and will also be supplied and utilized to directly assist those who desire such information to determine for themselves the opportunities of manufacturing in Alberta.

No Intention to Bonus

Addressing the 125 delegates from all parts of the Province which waited upon the Government and asked for the establishment of a Provincial Industrial Organization, Premier Stewart remarked that it was not the intention of the Government to bonus or "spoon feed" industries, The Premier may have had good reasons for making this remark but it has perhaps led to a little misunderstanding on the part of some, Those who have been most urgent in advocating Provincial Industrial Research had no idea of asking that any industries be bonused; but simply that data be collected which would lead to the establishment of only those industries which would be successful with ordinary good management, What has sometimes been termed "Dummy" industries are not wanted.

The Provincial Industrial Organization has been placed under Hon. Dr. A. G. McKay, Minister of Municipalities, who will be provided with an adequate and competent staff. Although it has not yet been decided to change his title to "Minister of Industry and Municipalities," this may be done in the near future. Sufficient for the present that Hon. Dr. McKay will discharge all the functions of a Minister of Industry An Advisory Committee, with Mayor Brown as Chairman, has been appointed, and this committee will consult with the Minister probably once per month or once in two months to make suggestions and to learn of the researches made.

As an illustration of what industrial research, conducted on right lines may lead to, it might be stated that Medicine Hat, the only city in the Province which has an industrial agent making research, has ascertained during the past few months, through this official, that farm tractors can be manufactured under very favorable conditions in that city, and the owners of two large plants, recently engaged in the manufacture of munitions have joined forces with two well-known firms manufacturing tractors in the States with great success, to engage in this industry in the Medicine Hat plants. Considering the fact that 10,000 tractors were brought into western Canada last year, one realizes the possibilities of this industry alone. The researches made by the Provincial Industrial Organization will probably reveal the fact that many other industries can succeed. As the domestic markets for Alberta's industrial products extend from the Great Lakes to the Pacific Coast, and in addition, to a large and profitable market in the Orient, with a possibility that a Siberian market may be developed, the future for Alberta's industrial development is indeed bright.



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The Percentage Cost of Doing Business

By JOHN C. KIRKWOOD

Editor's Note.—This article by Mr. Kirkwood is an elaboration of some of the material contained in his former article in the January issue of "Industrial Canada"—the article entitled "A Cost System of Universal Application." Because of expressions of interest in that contribution to "Industrial Canada," and of requests for a fuller presentation of some of the points contained in it, the accompanying article has been prepared.

THE common practice is to state the cost of doing business as a percentage reckoned on sales. Thus, if and when a man says, "My costs of doing business are 16%," he is supposed to mean 16% as reckoned on his year's sales.

Should it be desired, however, to state the cost of doing business as reckoned on the *cost* price of the goods sold, then a conversion calculation becomes necessary. If the percentage on *sales* is known, then the conversion calculation, expressed as a formula, is:

$$\frac{\text{Percentage as reckoned on } sales \times 100}{100 - \text{Percentage as reckoned on sales}} = \text{Percentage as reckoned on the cost price of the goods sold.}$$

Thus, if the percentage cost of doing business, as reckoned on the year's *sales*, is 16%, then the conversion calculation is:

$$\frac{16 \times 100}{100 - 16} = 84) \; 1600 \; (19.05 = \text{percentage as reckoned on } cost.$$

Note.—In this calculation it is obvious that the underscored figures, when added together, make 100.

Again: If the cost of doing business as reckoned on *sales* is 17.87%, then the conversion calculation, briefly expressed, is:

$$8213) \; 178700 \; (21.76 = \text{percentage as reckoned on } cost.$$

Here, again, the underscored figures, when added together, make 100.

The Foundation of the Short-Cut Method

The above short-cut method of ascertaining the percentage cost of doing business, as reckoned on the *cost* price of goods—this when the percentage on *sales* is known, is based on longer calculations.

To illustrate: If the year's cost of doing business is $23,640; and if the year's sales are $118,200, then the cost of the goods sold for $118,200 is $94,560. That is, goods costing $94,560, with the costs of their selling added, namely $23,640, give total sales of $118,200.

So we have the simple problem: If goods costing $94,560 are sold at an advance of $23,640, what is the percentage advance? The calculation is:

$$\frac{\$23,640 \times 100}{\$94,560} = 25\% = \text{percentage advance on } cost.$$

Similarly, $23,640, the costs of doing business for the year, in relation to *sales*, and calculated as a percentage, is:

$$\frac{\$23,640 \times 100}{\$118,200} = 20\% = \text{percentage cost of doing business as reckoned on } sales.$$

So we have, on the basis of the above example, this equation:

20% as reckoned on *sales*=25% as reckoned on *cost*.

Now let us apply the short-cut method—this upon knowing that the cost of doing business as reckoned on *sales* is 20%. The short-method calculation is:

$$80) \; 2000 \; (25 = \text{percentage cost of doing business as reckoned on the } cost \text{ price of goods.}$$

Note.—Again it is pointed out that the underscored figures, when added together, make 100.

Let us take another example to illustrate the foundation of the short-cut method. Accordingly, we shall suppose that the year's costs of doing business total $64,683, and that the sales for the same period are $528,062. This means that goods costing $463,379 have been sold at an advance of $64,683, so giving sales of $528,062. Calculating these costs of $64,683 in relation to both the cost price of the goods and their sale price, we have these calculations: First, in relation to the *cost* price of the goods:

$$\frac{\$64,683 \times 100}{\$463,379} = 13.96\%$$

Second, in relation to sales:

$$\frac{\$64,683 \times 100}{\$528,062} = 12.25\%$$

Thus we have:

12.25% as reckoned on *sales*=13.96% as reckoned on *cost*.

If we use the short-cut method, being given the percentage cost of doing business, as reckoned on sales, as 12.25%, then we have the following calculation:

$$8775) \; 122500 \; (13.96$$

Again it is to be noted that the underscored figures make 100.

These illustrative examples suffice to show both the "how" and the "why" of the short-cut method of converting the percentage cost of doing business as reckoned on *sales* into the equivalent percentage as reckoned on the *cost* price of the goods sold.

Analyzing Costs Under Standard Headings

Our next step will be to show how the several main and subordinate groups of constituent cost factors can and should be presented in the form of percentages. An illustrative example will give clarity and interest to this phase of our study.

We shall assume that the total year's sales have been $2,643,869, and that the total costs for the year have been $516,345. This means that merchandise costing $2,127,524 has been sold at an advance of $516,345, so giving total sales of $2,643,869. Worked out, it will be found that these costs of doing business for the year are:

19.53% as reckoned on *sales;* and
24.27% as reckoned on the *cost* of the goods sold;

That is:

19.53% as reckoned on *sales*=24.27% as reckoned on *cost*.

The arithmetical calculation is:

$$8047) \; 195300 \; (24.27$$

We shall now proceed to define under standard divisions and group headings the several factors of the cost of doing

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business, and to state these costs in terms of money and of per cent., in relation to both sales and cost. Accordnigly, we have the following analyzed record:

Main and subordinate factors of the cost of doing business:	Total year's cost in terms of money:	This cost, in percentage form, in relation to sales:	This cost, in percentage form, in relation to the cost price of the goods sold:
A. The Cost of Overhead:			
1. *Rents*	$16,656	.63	.78
2. *Fixed expense* ..... (Rates, taxes, insurance, light, power, fuel, telephone rentals, and all other fixed charges.)	7,403	.28	.35
3. *Labor* ..... (Administrative, executive, clerical and low-grade labor, omitting charges for labor more correctly entered elsewhere.)	69,798	2.64	3.28
4. *Miscellaneous items*.... (Stationery and postage, office printing, telephone calls and telegrams, repairs and renovations, travelling expenses of administrative and executive staff, etc.)	30,933	1.17	1.45
5. *Losses* ..... (Due to bad debts, petty thieving, claims, allowances, value written off stock as a consequence of depreciation, damage, spoilage, leakage, shrinkage, destruction, breakage, exposure, etc.)	10,311	.39	.48
6. *Depreciation* ..... (On fixtures and furniture, plant and equipment.)	22,737	.86	1.07
7. *Interest* ..... (Paid on bank overdrafts, overdue trade accounts and accommodation loans.)	3,172	.12	.15
8. *Legal expenses* ..... (For patents, protection suits, and counsel.)	1,851	.07	.09
B. The Cost of Selling:			
9. *Salesmen's remuneration* (Salaries, wages and commissions.)	122,411	4.63	5.75
10. *Travelling expenses* .... (Of salesmen, including allowances for customers' entertainment, telegrams, telephone calls, etc.)	8,460	.32	.40
11. *Advertising* ..... (Including remuneration of advertising staff; cost of printed matter and its mailing or distribution; cost of space in or on newspapers, magazines, billboards, street cars; signs, window displays, novelties, samples and their distribution; donations and subscriptions made in the name of advertising, etc.)	46,796	1.77	2.21

12. *Delivery* ..... (Wages and allowances paid the delivery staff; upkeep of delivery plant and equipment; wrapping and packing; prepaid deliveries, duty and insurance.)	17,185	.65	.81
C. Interest Due Capital:			
13. *Wages due capital*..... (Say 6% on the capital employed in the business, whether furnished by principals, shareholders, sale of bonds, or loans; capital so employed being $700,000.)	42,000	1.58	1.96
D. Super-Profit Earned	116,632	4.42	5.48
Totals	$516,345	19.53	24.27

Note.—The super-profit earned in excess of interest or wages due the capital employed in the business, is not, strictly speaking, a cost factor. It is included in this analysis since it is a constituent part of the sum of $516,345—the amount received in the year in excess of the cost price of the goods sold. In a sense the price of goods sold should be made large enough to return a super-profit—a sum in excess of all costs, and in excess of the amount required to pay dividends to those entitled to them; a sum a portion of which can be credited to a reserve or bond-redemption fund, or employed for bonus dividends. Accordingly this "D" line is included for its suggestiveness, even though its inclusion among the cost factors is open to challenge.

Summarizing these costs, by their principal group divisions, we have:

	In Dollars.	As a percentage reckoned For sales.	On cost.
A. The Cost of Overhead...	$116,861	6.16%	7.65%
B. The Cost of Selling.....	194,852	7.37%	9.17%
C. Interest due Capital.....	42,000	1.58%	1.96%
D. Super-Profit Earned.....	116,632	4.42%	5.48%
	$516,345	19.53%	24.27%

Little Things Become Great Things

The advantage of analyzing costs, as in the foregoing illustrative example, is that it shows the contribution to the total cost, in dollars, of every single major and minor cost factor; also, the magnitude, in dollars equivalent, of one per cent., or a fraction of one per cent. One per cent., it will be seen, represents $26,438.69; and half of one per cent. is $13,219.34. So if the costs of doing business can be reduced by a single per cent., or even by half of one per cent., a very substantial reduction in the cost of doing business will be a consequence, which reduction may permit of an addition to the dividends paid those entitled to them; or to the reserve or bond-redemption funds.

The Analysis of Costs

The analysis of costs, after the manner indicated and illustrated, reveals in a persuasive and striking way the importance of costs analysis. Analysis lets daylight in on a business, brings to view hidden and wrong things and conditions, and may lead to a sort of house-cleaning—to the elimination of leaks and sources of weakness and loss. For example, the cost of delivery, when studied analytically, may constitute a challenge to the management to lower this cost, which may be perceived to be excessively high. Similarly, in respect of other factors of cost—the cost of labor, of losses, of miscellaneous items. An analytical examination of these cost factors and of their composition may lead to substantial reductions and a consequent saving. Wasted time, carelessness, extravagance, and duplicated effort—sources of loss and weakness—may be washed out of the management or conduct of a business through the effort bred from an analytical study of the component factors of cost.

One thing should be clear, namely: every dollar of unnecessary or excessive cost in the conduct of a business calls for

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Reserve and Undivided Profits..... 15,500,000
Total Assets..... 427,000,000

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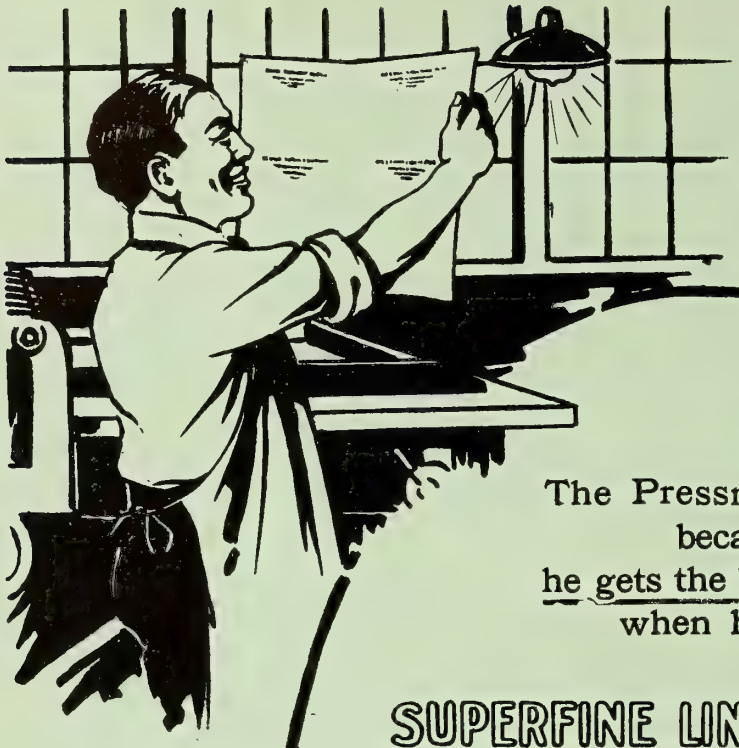
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its recovery by the sale, at a profit, of additional merchandise. This puts on the business a burden of effort which may be extraordinarily costly and exhausting. For example: suppose that the advance over cost required to recover all costs is 25%; and suppose that the costs of doing business are excessive by $10,000. This situation means that goods costing $40,000 must be sold for $50,000 to provide the $10,000 of excessive costs. The purchase, stocking, handling and selling of $40,000 worth of merchandise in a year, in addition to normal or average sales, may put an exhausting burden on the business.

If the costs of doing business can be reduced by $10,000, and if the advance over cost received on goods sold be 25%, then it becomes clear that annual sales less by $50,000 than normal will suffice to liquidate all costs and to provide the sums required to pay dividends to stock holders, and the super-profit which is a proper objective.

A Good Way to Lower Percentage Costs

The percentage cost of doing business can be lowered by increasing sales. For example:

If annual sales be:	Accomplished at a cost, in dollars, of:	Then the percentage cost of doing business, as reckoned on sales, will be:
$1,000,000	$200,000	20.00%
1,500,000	250,000	16.66%
2,000,000	300,000	15.00%
2,500,000	350,000	14.00%
3,000,000	400,000	13.33%

The thing of importance is that every manufacturer, jobber, wholesaler, and retailer shall:—

1. Have and operate a sound and comprehensive cost-accounting system, fashioned after the divisions and cost-factors set forth in the example above.
2. Translate dollar costs into equivalent percentages.
3. Prune down dollar costs to the absolute minimum, always looking forward to the lowering of the percentage cost of doing business.
4. Endeavor mightily to lower the percentage cost of doing business by increasing sales.

So are power and mastery in one's field achieved; so is safety assured, business made profitable, and content of mind possessed.

Wayagamack Co.

Profits for Past Fiscal Year Show Increase Over Those of Previous Year

The annual report of the Wayagamack Pulp & Paper Company, for 1918, proves to be an encouraging document. Earnings have increased, in spite of transportation troubles, from $966,349 to $1,057,742. The conservative policy that was emphazied in the "adjustment of surplus" last year has been continued, for the amount written off this year is $144,726 as compared with $82,383 one year before, and the small amount of $10,000 two years ago. Indeed, it is the last amount that permitted the percentage available for common dividends to show up better, apparently, in 1916 than in 1917 or 1918, for the balance worked out at 12.09% two years ago, compared with 10.28% in 1917, and 10.88% this past year. In connection with the surplus brought forward from the previous year, the total of 1916, $632,550, was cut down to $350,058 before it appeared in the 1917 column. The surplus carried forward to the new year stands at $908,060, for out of the total was taken the sum of $500,000, which is explained in the directors' report as due to the following reasons:

"The pulp mill is now completed, but it is possible it may be advantageous to make some future additions to the paper mill with the object of increasing the proportion of finished paper. With this and other possible improvements in view,

The Merchants Bank of Canada

Head Office, MONTREAL **Established 1864**

Paid-up Capital	$ 7,000,000
Reserve Funds	7,437,973
Total Deposits (November, 1918)	141,000,000
Total Assets (November, 1918)	173,000,000

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Vice-President: K. W. Blackwell
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UNION BANK OF CANADA

Established 1865 **Head Office, WINNIPEG**

Paid-up Capital	$5,000,000
Reserve Fund	$3,600,000

Total Assets as at Nov. 30th, 1918, over $153,000,000

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it was considered expedient to set aside the sum of $500,000 to the credit of general reserve."

Not alone in the improved earnings, and in the evident determination to keep estimates down to a safe basis is the statement issued more favorable than in the past, but in the important department of working capital, the advance is most marked of all. Two years ago the working capital stood at $300,461; one year ago this showed a slight increase to $432,652, but this year there was an advance to $1,330,650, an increase in the year of $897,993. This is made up from both positive and negative sources. The cash on hand rose from $12,499 to $499,414, and accounts receivable were about $46,000 ahead.

In the table of assets and liabilities the plant is set down as valued at, $3,127,730 as against $3,075,177 last year, and the limit as worth $6,038,244 compared with $6,204,138, or $165,894 less this year, which is quite in keeping with the present policy of most of the pulp and paper companies, depreciating the limits for the lessened supply of wood left still to cut. In some cases this is disregarded, on the theory that the growth in the limits in the year may be taken, along with the increase in the value year by year of the wood, to offset the amount of timber actually cut off.

Howard Smith Paper Mills

Net Profits for 1918 Showed a Substantial Increase Over Profits for 1917

Net profits of the Howard Smith Paper Mills, Ltd., for the year ending with December, 1918, were $252,604, which, added to sundry revenue of $824, and revenue from investments of $3,812, made a total revenue of $257,241, against $204,263 in 1917, and $159,436 in 1916. After deducting $17,730 for bond interest, $71,243 for depreciation, $17,716 for taxes and $4,760 for sinking fund, the balance of $145,792 left for dividends was equal to 13.7, against 11.7 per cent. the previous years. The balance was left for profit and loss account of $91,292, against $81,623 in 1917, bringing the total to credit of that account to $205,765.

The assets of the company amount to $2,631,666, including cash, investments and accounts receivable of $242,983, while plant and equipment are placed at $1,783,954. On the liability side of the account are bank loan and accounts and bills payable amounting to $408,523. In 1918 the sale of the company amounted to $1,377,144, against $1,122,215, an increase of $254,928.

Alberta Oil Output

Quantity of Gasoline and Kerosene Sold Last Year Shows a Satisfactory Increase

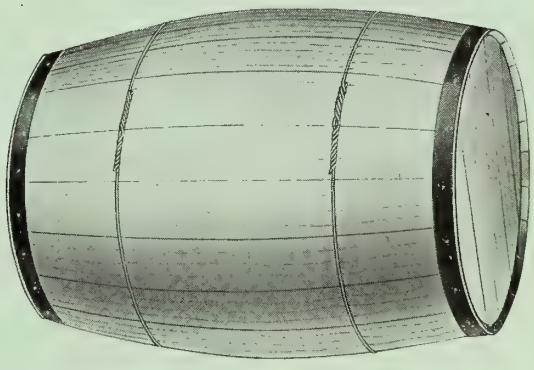
Three oil refineries were operating in the Calgary field last year, and complete figures which are now available, show a very satisfactory increase in the quantity of gasoline and kerosene sold last year over the amount sold in previous years, the total for the twelve months ending December being 331,098 gallons of gasoline and 107,320 gallons of kerosene, valued at $150,000 and $160,000, respectively. A few days before these figures were published the Calgary *Herald* commenting on the importance of the local oil producing areas, said editorially:

"During 1917 Alberta wells produced 312,000 gallons of gasoline and kerosene as well as 8,500 barrels of crude petroleum. Last year the production was greater and there were other oil producing fields exploited and proven. The exploration work is continuing with every prospect that ultimately Alberta will be developed into one of the great oil producing areas of the North American continent."

Spanish-American Trade

Canadian of many years' experience in Spanish America, and now engaged with large corporation in making investigations and reports thereon (part of time in Mexico and part in north), desires—on salary and commission basis—to arrange jointly with several non-competing Canadian manufacturers to place their goods on Spanish-American markets. Reasons for desiring change are: (*a*) Desire to increase income by commissions, and (*b*) Belief that now is the opportune time for Canadian manufacturers to secure a profitable share of Germany's lost trade with Central and South America. Qualifications: Thorough knowledge of the countries in question, their peoples, language and customs; extensive and successful experience in opening and conducting sale of commercial lines in the Spanish South; familiar with details of export office work; large experience in advertising in Latin America and elsewhere; accustomed to handling men and the general management of affairs; experienced in negotiations with presidents, governors and other high officials of Church and State in the Southern republics. Highest references. Address P.O. Box 294, Toronto, Canada.

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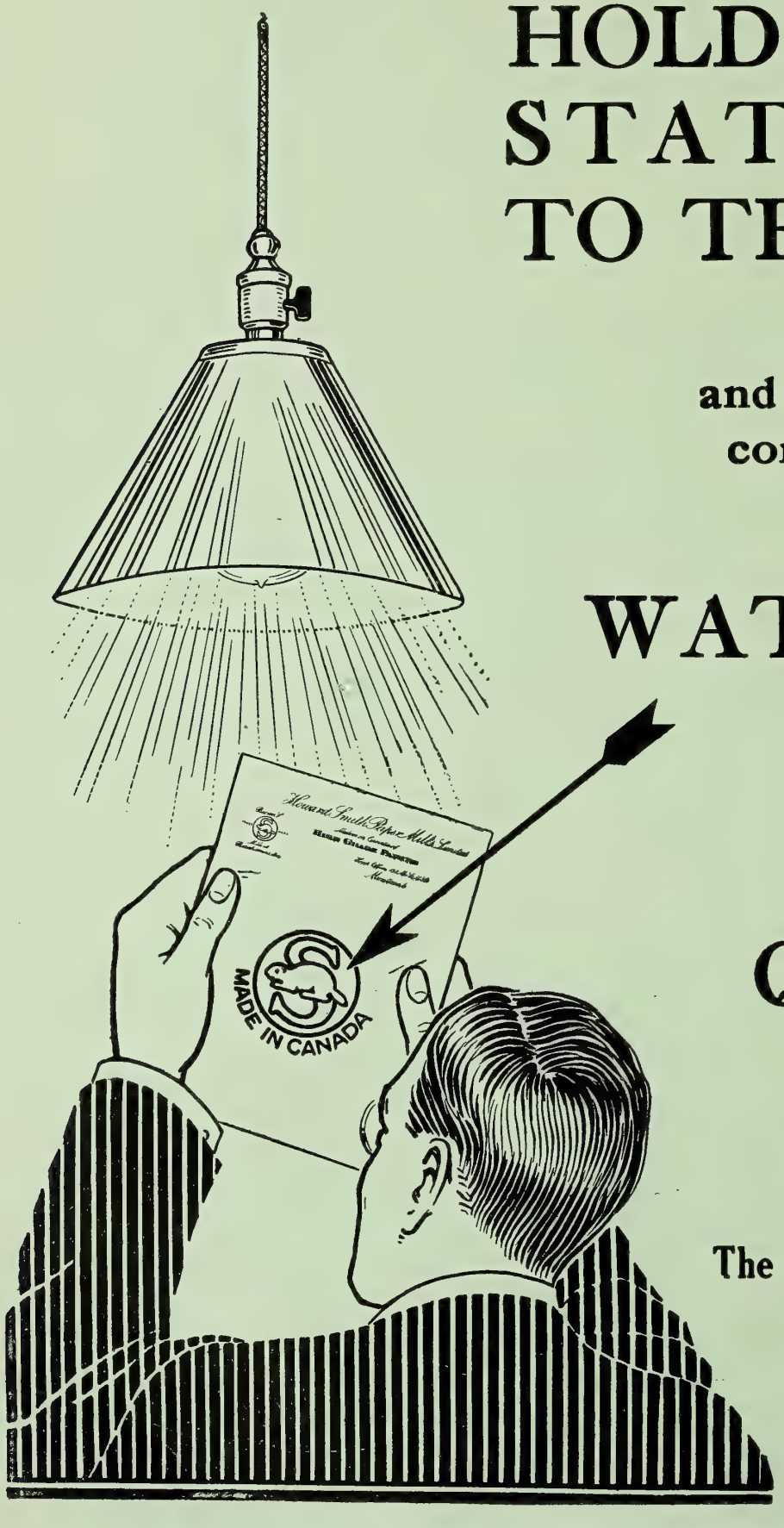
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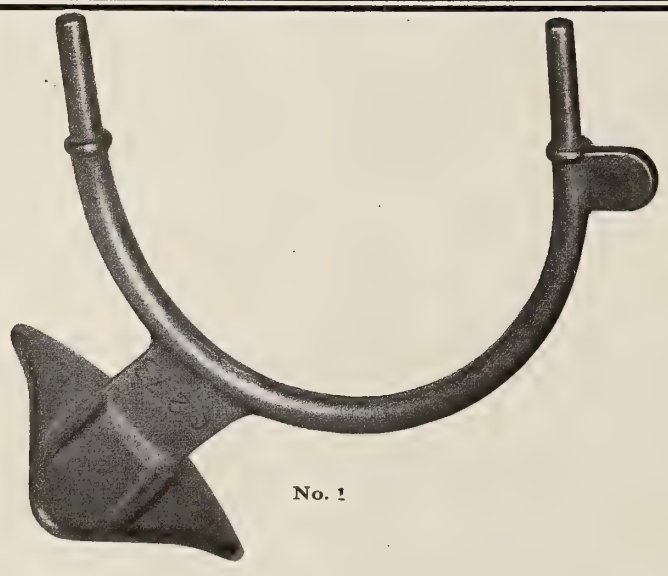
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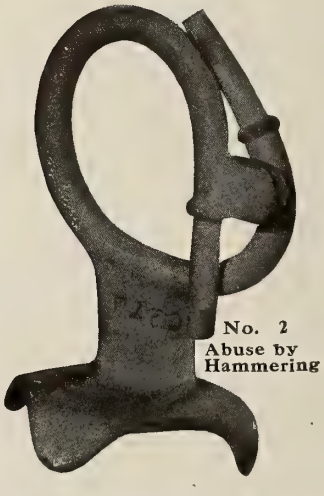
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Employment of Electrical Energy in Canada

Nearly Two Million Horse-Power of Primary Power Developed in the Central Electric Stations of the Dominion—Practically Ninety per Cent. of this Power Derived from Water—Nearly all Industrial Centres Within Zone of Hydro-Electric Developments

By J. T. JOHNSTON
Assistant Superintendent, Dominion Water Power Branch

ELECTRICAL energy provides an ideal source of power for practically all classes of manufacturing, for the operation of street railways, for the operation of mines, for municipal and domestic lighting, and for innumerable other activities. Its use in these fields is developing with remarkable rapidity. Other fields, such as the electrification of steam railroads, the smelting of ores and the expansion and increasing scope of electro-chemical and electro-metallurgical industries offer vast scope for future development. The growth of the central station industry in Canada has been rapid, particularly during recent years. The larger electrical systems, both commercial and publicly owned, have been widely extended from year to year, opening up new territory in the electrical distribution field.

In order to properly measure the scope of the industry and to gauge its importance to commercial and industrial interests, the Dominion Water Power Branch of the Department of the Interior, in co-operation with the Dominion Bureau of Statistics of the Department of Trade and Commerce, has had under way during the past year, an exhaustive analysis of the central electrical stations of the Dominion. The analysis of the statistics collected has been completed within the past few days. As some time must elapse before the complete report can be published and distributed, a brief synopsis of the statistical data has been prepared.

Purpose of Compilation

The report consists essentially of two sections; the first comprising the introduction and an analysis of the statistics, the second forming a comprehensive directory of the central electric stations of the Dominion. The purpose lying behind the compilation of the data is fourfold.

1st. A stock-taking of the present central station facilities with provision for expansion.

2nd. An analysis of the statistical data collected, for the purpose of noting the characteristics and trend of the industry.

3rd. The preparation of a complete directory of the central station industry covering concisely and systematically the principal features of the commercial and publicly-owned systems and stations in operation throughout the Dominion.

4th. Making available to those interested the locations where blocks of electrical energy are for sale, the prices at which this power is obtainable and the transportation facilities available in the vicinity.

In considering the statistics which are summarized hereunder, it should be borne in mind that the figures have reference solely to central electric stations, that is, to stations which are engaged in the distribution and sale of electrical energy. Where central stations were interwoven with other activities, such as the operation of electric railways, of mines, of pulp mills or of other industrial enterprises, the central station equipment, capitalization and other statistical data secured has been wholly divorced from the allied industry. This line of severance has been drawn through the entire statistical analysis. Central stations purchasing power in bulk for purposes of re-sale are included in the financial and staff statistics.

A summary of the statistics is presented in Table 1, which analysis the outstanding features disclosed by the census returns, and shown the relationship between commercial and municipal or publicly-owned stations. The total number of central electric stations recorded is 666, of which 323 are commercial stations and 343 are municipal. Examination of the figures, however, shows that the excess in municipal stations is attributable to the non-generating station. Of the stations with generating equipment, 296 are commercial and 174 are municipal. Of the stations without generating equipment 27 are commercial stations and 169 are municipal. The Hydro-Electric Power System of Ontario is largely responsible for the large proportion of municipal stations purchasing power in bulk.

Power Equipment Installed

A summary by provinces of the number, kind and horse power of the primary power machines installed in central electric stations on January 1st, 1918, shows that the primary power totals 1,844,571 horse-power of which 78.3 per cent. or 1,444,314 horse-power is installed in commercial stations and 21.7 per cent. or 400,257 horse-power in municipal stations. Of the total primary horse-power installed 1,652,661 horse-power is derived from water, 180,200 from steam and 11,710 from gas and oil. From the above figures it will be noted that 89.6% of the entire primary power in central stations in Canada is derived from water.

The relation of the primary power installation to the population by provinces, affords an interesting basis for comparison and analysis. The total primary power installed in central electric stations throughout the Dominion averages 221 horse-power per thousand population. Yukon averages the highest with 1,206 horse-power per thousand population, British Columbia coming next with 378 per thousand, Ontario with 286 per thousand, Quebec 271 per thousand, Manitoba 118 per thousand, New Brunswick 49 per thousand, Nova Scotia 34 per thousand, and Prince Edward Island 13 per thousand population. Population by provinces is the only feasible basis available for making a per capita analysis of the central station industry. The occupation of the population, and its varied density in different localities have a direct bearing on the market for electrical power, and consideration of these phases will assist in explaining the above variations in the per capita development.

Hydro-Electric Power and Central Station Industry

One of the most important features disclosed as a result of the statistics, is the outstanding position which water power takes in the central station field. Out of a total installed primary capacity of 1,844,571 horse-power, 1,652,661 or practically 90 per cent., is derived from water. This figure is indicative of the extent and availability of the water power resources of the Dominion and of the remarkable

degree to which their adaptability for central electric station work has been appreciated in principle and realized in practice. The vast water power resources of the Dominion, the ready adaptability of hydro power to the production of electrical energy and the increasing extent and scope of economical electrical transmission, from an industrial asset which probably more than any other will ensure a full measure of future prosperity.

TABLE I.

Central Electric Stations—Summary of Principal Features, 1917

	Total.	Commercial Stations.	Municipal Stations.	Per cent. of total. Commercial.	Per cent. of total. Municipal.
1	2	3	4	5	6
Number of stations	666	323	343	48.5	51.5
With generating equipment	470	296	174	63.0	37.0
Without generating equipm't	196	27	169	13.8	86.2
Total revenue from the sale of power	$44,536,848	$29,135,399	$15,401,449	65.4	34.6
For lighting purposes	$18,403,639	$9,610,835	$8,792,804	52.2	47.8
For all other purposes	$26,133,209	$19,524,564	$6,608,645	74.7	25.3
Total capital invested	$356,004,168	$282,818,495	$73,185,673	79.5	20.5
Total No. people employed.	8,847	5,135	3,712	58.0	42.0
Total salaries and wages	$7,777,715	$4,290,505	$3,487,210	55.2	44.8
Total h.p.	1,844,571	1,444,314	400,257	78.3	21.7
(1) Steam Engines and Steam Turbines.					
Number	251	133	118	53.0	47.0
Horse power	180,200	117,452	62,748	65.2	34.8
(2) Water Wheels and Turbines.					
Number	619	456	163	73.7	26.3
Horse power	1,652,661	1,322,852	329,809	80.0	20.0
(3) Gas and Oil Engines.					
Number	113	52	61	46 0	54.0
Horse power	11,710	4,010	7,700	34.2	65.8
Electrical Generators.					
Number	943	627	316	66.5	33.5
K.V.A. capacity	1,387,521	1,086,546	300,975	78.3	21.7

Development by Provinces

The Yukon develops 97.4 per cent. of its primary central energy from water. Ontario develops 95.7 per cent. from water indicating markedly the commercial adaptability of water power for central station work, even where in competition with convenient and reasonably cheap coal supplies. Manitoba develops 95.2 per cent. of its central station energy from water, Quebec 94.9 per cent. and British Columbia 89.8 per cent. Alberta develops 43.2 per cent. from water although an abundant supply of coal is available. New Brunswick develops 38.8 per cent. from water power, Nova Scotia 19.2%. The percentage of water power used in central electric stations in Nova Scotia is low although the province is exceptionally endowed with available water power resources. An abundant coal supply indicates a reason for this condition. The city of Halifax is served from a steam-driven plant, the largest central electric station in the province. The present tendency in the province is, however, towards the increased use of hydro power. In Prince Edward Island only 13.9 per cent. of the central station power is derived from water. Topography and area of the Island province explain the lack of water power resources. In Saskatchewan, no water power is developed. Here the topography of the province is solely responsible, the entire settled portion being located in prairie country which is not naturally endowed with attractive water power sites.

Figure 1 presents in graphical form the comparative importance of the primary sources of power in the central electric station industry in Canada. Figure 2 presents by provinces the total primary horse-power installed in central

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electric stations, and Figure 3 shows the relation between installed water and fuel power in the various provinces.

For the entire Dominion the number of employees in central electrical stations totals 8.847 with salaries and wages aggregating $7,777,715 Of this total 5,135 are employed in commercial stations with salaries aggregating $4,290,505, and 3,712 in municipal stations with salaries totalling $3,487,210. The total number of employees throughout the Dominion averages 4.8 per thousand installed primary horse-power The total salaries and wages paid average $4.22 per annum per installed primary horse-power. Reference to the salaries and wages per installed power capacity discloses the fact that those provinces in which are located extensive transmission systems of large central station systems, show a low salary and wages bill per installed horse-power capacity. These extensive systems are in all cases founded upon water power installation. On the other hand in those provinces where central station industry is wholly or largely confined to individual stations for local purposes, the unit salaries and wages cost per installed capacity is high.

Financial Statistics

The capital actually invested in central electric station industry totals $356,004,168, of which 79.5% is invested in commercial stations and 20.5% in municipal or publicly owned stations.

The capital indirectly dependent upon electrical energy is enormous. No attempt has been made to go into this phase in this report. As showing the general dependability of the modern community upon electrical energy, reference might be made to the city of Winnipeg. According to a very careful and complete analysis made by the Dominion Water Power Branch in 1915 of the interests in Winnipeg which were to a greater or less degree dependent upon hydro-electric power derived from the Winnipeg river, it was shown that capital was involved to the extent of $169,260,963, and this on a power installation of only 55,400 horse-power.

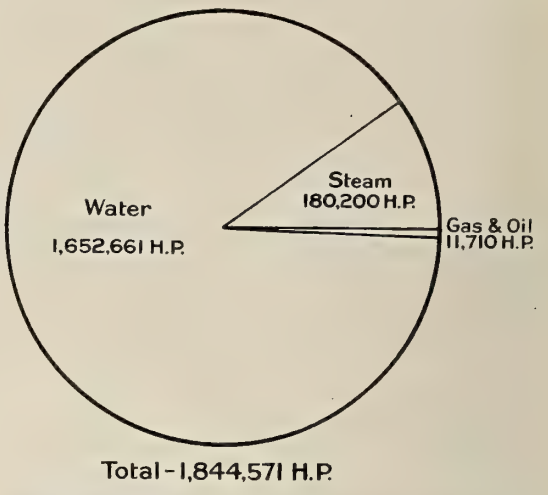


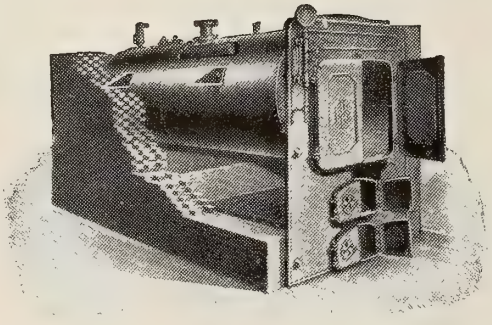
FIG. 1. *Central Electric Stations,—Primary Power by character of power, 1917.*

The total central station power installed in the Dominion is 1,844,571 horse-power.

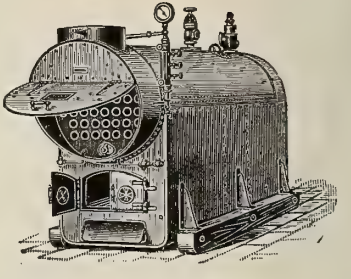
The total revenue received from the sale of electrical energy in 1917 was $44,536,848 of which $29,135,399 was secured by commercial and $15,401,449 by municipal plants.

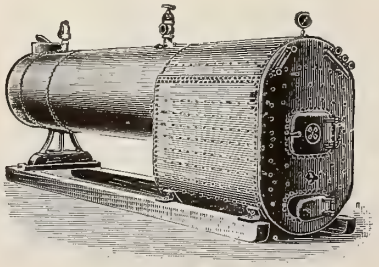
In securing the statistics concerning capital, the actual cash investment in the central station activities was called for, apart from the consideration of stock and bond issues. The resulting figures are therefore of particular interest as

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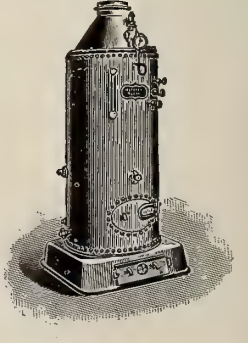


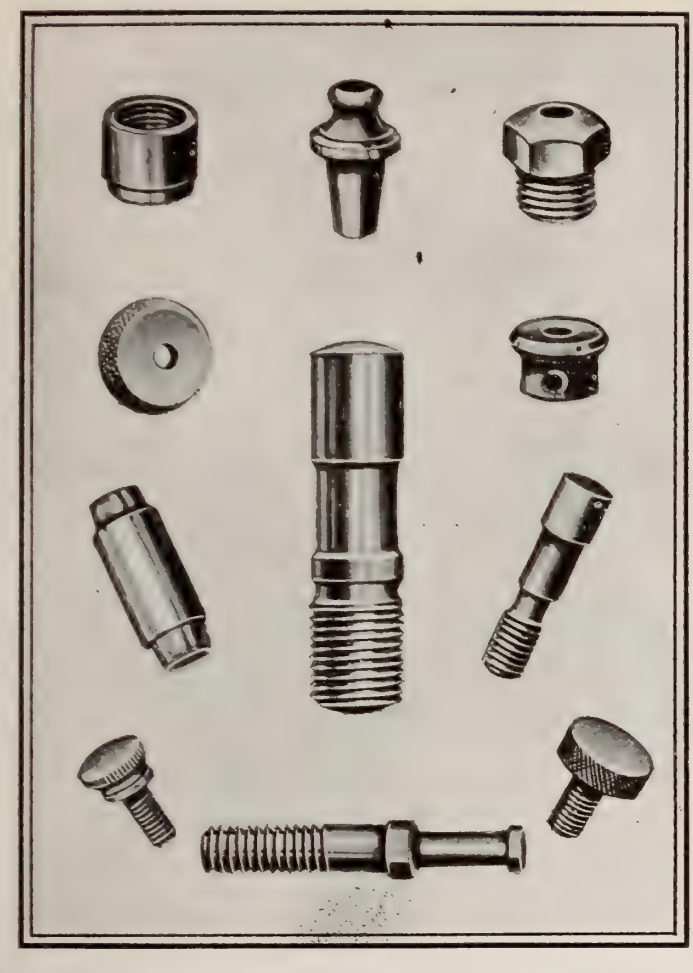
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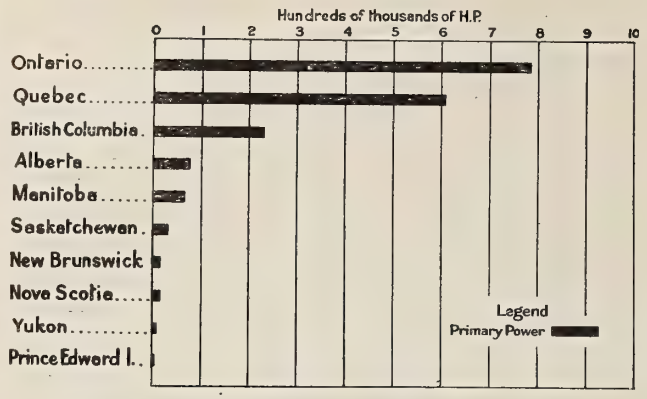


FIG. 2. *Central Electric Stations,—Total Primary Power by Provinces, 1917.*

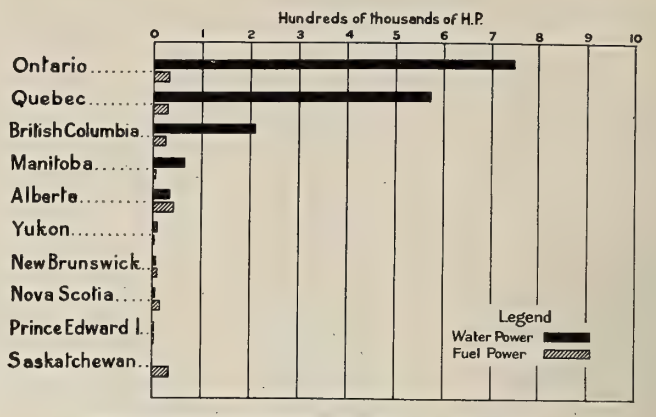


FIG. 3. *Central Electric Stations.—Water vs. Fuel Power by Provinces, 1917.*

a basis for determining the investment cost per horse-power installed.

The figures indicate that the actual average cost per installed horse-power for the Dominion is $193. This cost includes all capital invested in construction and equipment of hydraulic works, power stations, transmission and distribution systems; real estate; cash on hand; current assets; supplies, and all other similar items.

Of special interest are the figures relating to the capital invested in hydro power central stations. The average capital cost per installed horse-power for the Dominion is $188.

Of special interest is the actual cost of construction of hydro-electric power stations per installed horse-power. Omitting all real estate, transmission and distribution equipment, seventy representative hydro-electric stations throughout the Dominion with an aggregate turbine installation of 745,797 horse-power and a total construction cost of $50,740,468 show an average cost of $69.11 per installed turbine horse-power. The figure in brief represents the average capital cost of construction at the power site and is of considerable interest to engineers.

A comparison of the central station statistics of Canada with similar figures in the United States would be of interest. Unfortunately the 1917 census returns of the United States will not be ready for publication for several months.

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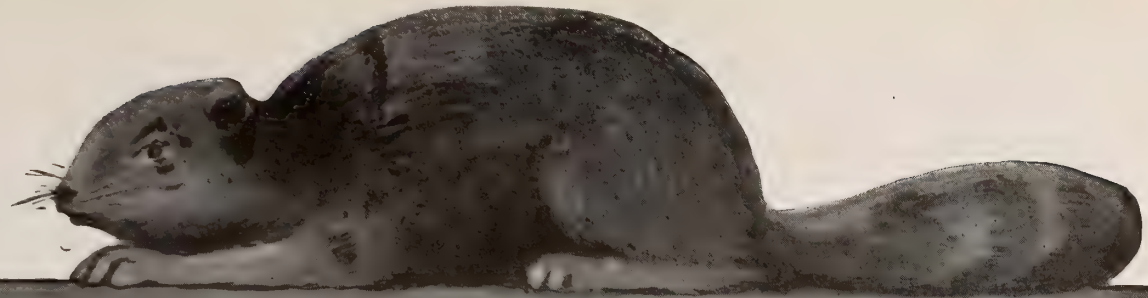
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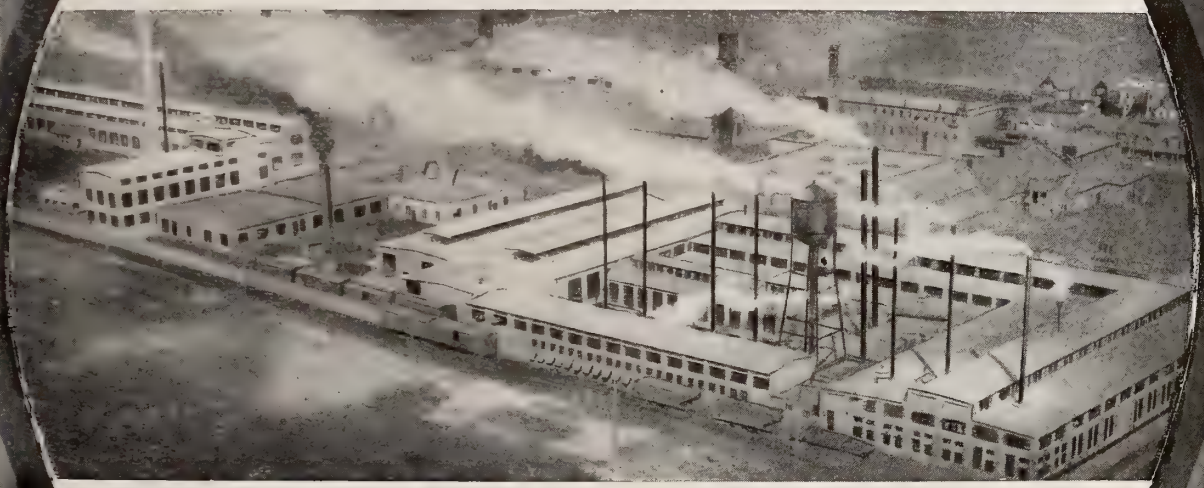
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The Industrial Importance of Accidents*

It is Hardly Realized how Destructive are our Modern Machines and Methods of Manufacturing—Statistics Given to Show how very Serious is the Loss to Industry—Work of the National Safety Council Explained and Necessity for Organization Emphasized

By E. B. SAUNDERS
Field Secretary, National Safety Council

I SHOULD like to speak on the industrial importance of accidents and what may be done to prevent them. To put myself on a fair footing with you I should state that I am a representative of a manufacturing company, the Simonds Saw Co., with a factory in Montreal and branches in Vancouver and St. John, so I may claim to be one of your fellowship.

Our interest in the safety question came largely from the fact that saws are deadly implements in the industrial world. Many accidents result from saws in lumbering and woodworking, so we began to look up our hazards and follow our product in daily use. A modern manufacturer wants to know what becomes of his product, with what satisfaction it is meeting, whether he is making tools of blessing or tools of havoc. So we are doing what we can to safeguard the saw, to see that it does not carry destruction except to trees.

To-day, I bring you greetings from the National Safety Council, coming from Massachusetts to represent the Eastern Section of the National Safety Council. We have organized the New England Safety Council, taking all the eastern states, excepting Connecticut, which has an Association of its own, so our work borders on your line of work in New Brunswick and Nova Scotia and that brings us close together.

Industrial Accidents Numerous

To take up the industrial phase. We hardly realize how destructive are our modern machines and methods of manufacturing. Perhaps only a few accidents occurred in our own shops, a few scratches or bruises, or somebody trips, so that we say, looking over the past year, that we have had very few accidents; we may even forget these little things.

Take the State of Massachusetts. There were killed in 1916, 463 men, which does not seem so very bad, and there were injured 135,720 men. This does not seem so very serious in a state that has over 10,000 industries. But they annually cost the manufacturer of Massachusetts over $5,000,000 in premiums, and cost the workmen in wages about $3,000,000 of which they got back about $2,000,000 and lost $1,000,000.

In the first year of the organization of the Industrial Accident Board there were 90,168 injuries reported; last year, 135,720. So when you pile it up, it is quite an expensive affair. It is fairly indicative of what takes place in the country as a whole.

Western Pennsylvania is called the industrial centre of the world by those who live there. I suppose we all like to think of our section as being the centre. 1,202 accidental deaths and 102,000 serious injuries occurred in these industries in 1917; 17 per cent. increase over 1916. The steel mills are centred there and many accidents occur in these days of increased speeding in industry.

Workmen's Compensation shifts individual responsibility to the industry. Before, an individual had to sue his employer and show fault, and the employer had to make defense. The Workmen's Compensation followed the philosophy of Germany—that it is not a matter of placing blame but of looking at accidents from the viewpoint of increased hazards which have come with the development of power-driven machinery, those hazards being so great that industry ought to pay the bills. Therefore, these acts deprive the employer of legal defense and require that industry shall pay, while to protect itself the industry may insure and get back what it pays. The industry charges more for its product and, therefore, it rests upon the consumer finally. When these expenses multiply, they form a great burden upon industry.

Costs of Accidents Increasing

Our efficiency methods require that we figure costs as closely as possible, and the costs growing out of industrial accidents have been rapidly increasing.

The Governor of Massachusetts, in his address in the legislature this year, made some very significant statements regarding the number injured.

"In the year ending last June, there was paid out over $5,000,000 for compensation and medical treatment. During the last two years accidents have nearly doubled in number and severity. Reports indicate that since last June the increase has amounted to an even greater figure, due in a measure to the supplanting of old and experienced workers by those who were inexperienced. It has been estimated that more people are now killed and injured in industry in the United States in a four-year period than were killed in battle or died of disease or wounds during the entire Civil War.

"We should increase the safeguard against accidents. There is a great social loss in addition to the individual loss which is suffered. Compensation is a very necessary and beneficent thing, but the prevention of the destruction of the lives and limbs of workmen is far better than compensation. It is estimated that the economic waste from accidents alone in the commonwealth exceeds $15,000,000 every year. I recommended that the Legislature carefully investigate this subject with a view to providing remedial legislation." This message went to the Joint Judiciary Committee and a summer commission was appointed to investigate the matter. This year it will be an industrial situation to consider; last year it was an insurance problem.

Great Loss of Time

Take it through the United States as a whole. There occur some 500,000 accidents every year in which the workers lose more than four weeks' time. It is a little hard to really understand how many that means. For instance, I take the train this afternoon at 2.30 to Boston. If an army of men should march single file from Moncton to Boston at 25 miles a day, it would take over twenty days to make that march, and that would represent the industrial army being injured in the United States every day. We thought we did a big

*Address delivered at annual meeting of Maritime Branch, C.M.A., Moncton, N.B.



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thing in raising $100,000,000 for the Red Cross, but the insurance costs for the Compensation premiums in the United States amount to more than $100,000,000 per year. You see what a burden this is putting upon our industry, especially in these days when war burdens are laid upon us. It is necessary as manufacturers, by whatever intelligible means available, to cut down the toll of accidents and, therefore, to cut down insurance premiums; to make safe places of our workshops, and, therefore, to keep our men satisfied, to keep their fingers and limbs protected from accidents, keep them free from occupational diseases, keep them sound men on the job, without too much lost time, without apprehension or fear that they will be hurt.

How is this going to be met? Instead of elaborating more upon the problem, I shall speak of the work of the Safety Council.

It is an association primarily of manufacturers. It began with the steel mills, railroads and mining companies—what we called "rotten risks" that found it hard to get insurance, if at all. They went into it as a business proposition to cut down costs, going after accident causes. They have had ten years' experience at it, from which they are able to lay down as basic facts three propositions;

Accidents Can Be Prevented

(1) *That three-fourths of all accidents can be prevented.* Companies have done that and have cut down very successfully the number of accidents, some reaching even a higher record than three-quarters;

International Harvester Company, accidental deaths reduced	60%
Lost time	60½%
Eastman Kodak Company, accidents resulting in loss of time	80%
Winchester Repeating Arms, accidents reduced	75%

(2) *That one-third of the accidents can be cut down by using mechanical safeguards; two-thirds by educational means.* Getting at workmen by organizing safety committees and holding safety meetings; appealing through moving pictures, showing accidents on railways, in plants, etc. The one-third is taken care of by the Safety Engineer, perhaps by going around the factory and providing special safeguards. A Safety Committee of men is appointed who will be permitted to go around the shop to find out what might be done. By such means accidents may be still further reduced.

Very close to the city where I live is a military training camp. It was built by a company specializing in safety work. The camp was built in a very short time with an almost incredible absence of accidents. I want to read you this report of Fred. T. Ley & Company, showing what may be done in hazardous building operations;

"Regarding our building the Hugh Army Cantonment at Camp Devens, I might say in regard to safety work, accident prevention, first aid, etc., that we maintained through the entire work a first-class engineer who travelled the job in a automobile seven days a week, visiting the hundred odd foremen and gangs, both night and day shifts. He made over one hundred recommendations which were all carried out, and secured the friendly co-operation of every superintendent, foreman and straw-boss on the job. Bulletins, signs and instructions in several languages were posted everywhere, and the total accident rate was probably less than any can-

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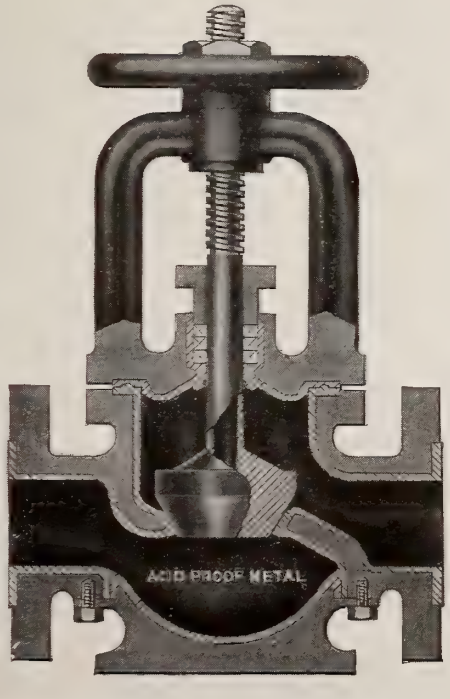
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tonment in the country. The methods employed have been put into effect by contractors on several other large Government operations."

In the report of Fred. T. Ley's general operations it was shown how accidents were cut down 80%, and accident costs 66%, in the summer months of 1917.

Different Kinds of Accidents

They standardize accidents according to different classes, such as handling material, falling material, employees falling, handling tools, nails, flying material, machines, miscellaneous, and grade according to the number of accidents per 1,000 employees.

In the year 1915, on flying materials they had 12 to 1,000 employees; in the second year 21 accidents. So they went after that and in the third year reduced the number to 9, which shows what may be done by direct attention to accident prevention work.

(3) *Every company doing systematic safety work has found that safety makes for efficiency, and pays good dividends.* In New England we are trying to constitute ourselves an advisory body to the state departments, so that when a State Commission is appointed we can come up before the Commission as a body of experts showing that the manufacturers are getting after that problem and solving the engineering question, for it is now a matter of safety engineering, and cutting down accidents by sane methods and thus cutting down costs.

In this way we are meeting the problem in a business-like way and are doing humanitarian welfare work of the very best type. Addressing ourselves to insurance problems we are at the same time putting a heavy hand on insurance companies so that they will not walk away with us. We are trying in all ways we can to study the problem.

In Bethlehem Steel plant, the Safety Committee not only did safety work, but took up other forms of *Committee work.* "In fitting the man to the job, night school, education, athletics, recreation centres, caring for the injured, the sick and unfortunate, all plant activities involving the human element are within the realm of the Safety Organization. If the problem of the employer and the employee is to be solved finally, the solution should naturally come through the medium of such a democratic organization, trained to be considerate and helpful each to the other."

Safety in Munition Plants

When the Government came to make munitions, they found the arsenals in a very bad condition. Through the National Safety Council, safety engineers volunteered who went into the navy yards and arsenals and made these places safe instead of hazardous places, where man would not have to risk their lives.

The National Safety Council office is located in Chicago, and from this central office influences are working out all over the country and the continent. They have found that while they can do a great deal by correspondence, they could do a great deal more by forming organizations everywhere, which would be branches of the organization. They have a splendid bulletin service that goes out from the central headquarters.

Reminders are posted on bulletins where the worker may see, to show him where accidents may occur. For instance, "*Don't get off the elevator this way,*" and similar advice.

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There are sections where bulletins are prepared for the different classes of manufacture, lumber, steel, steam railroading, textile, woodworking, etc. A copy of the proceedings of the National Council is also sent each year.

At a meeting held in New York there was an attendance of 1,500, with 157 speakers on the problem. A copy of the addresses was sent to each member. An *Information Bureau* is maintained, where you can write and get expert advice regarding safe-guarding machinery, gears, etc., or how to cope with any special problem. You can get some one to visit you, if necessary, and help you to organize your plant. You can get the experience of the whole country through these pooling plans. There is no money made by the organization, just enough dues to keep it up and pay expenses. The object is to deal with safety problems.

Membership Fee is Low

Rates of membership are made as low as possible, being $15.00 a year, where 1 to 100 are employed, and $25 a year, where 100 to 200 are employed, and the amount rises according to number employed.

A representative of the National Safety Council came to New England, and because its work concerns manufacturers decided that it was better to keep its organization industrial than to get off into irresponsible hands. They formed a branch of the National Safety Council affiliated with a State Manufacturers Association. That is what I hope you will do in Nova Scotia and New Brunswick—form a branch of the National Council and affiliate it with the Maritime Branch of the Canadian Manufacturers Association, because you do not want this safety work to get away from you.

We got out a little folder in the New England Safety Council, showing the employer what he might do to reduce expenses; meetings of superintendents and foremen; first aid to the injured; moving picture mass meetings (a dozen excellent films), schools for safety work, etc.

We have gone much farther than that. Bulletin No. 2 gives a course of 12 lessons in Safety Engineering. The State Department of Education in Massachusetts has taken over this work and it costs workmen $2 a year to get this instruction. Students can qualify to become safety engineers in a plant; that is, you can take one of your own workmen and educate him to do this work.

Insurance Rates Reduced

Bulletin No. 3—Insurance: (with State backing) Credits may be given for safety work. For instance, a safety engineer who organizes in his plant, gets 6% off the schedule rate. This is determined by Massachusetts Bureau, 5% is deducted for a hospital with nurse in attendance, etc.

Bulletin No. 4. Showing how the Y.M.C.A. or the Knights of Columbus will co-operate with us in the public work of putting on moving picture shows.

The Chairman of our Boston Committee is the Industrial Secretary of the Y.M.C.A. in Boston and also a representative of the U.S. Department of Labor in the east. On the 4th of June, a great mass meeting at which industrial firms were invited to attend was held in Boston, to study problems brought before them, in as striking a way as possible. The New York Central Railway lines are ready to loan their $10,000 films showing how accidents may be cut down to a minimum. We have been organizing all through Massachusetts with a centre in Springfield, another in Worcester, and now all around Boston forming committees to meet manufacturing problems.



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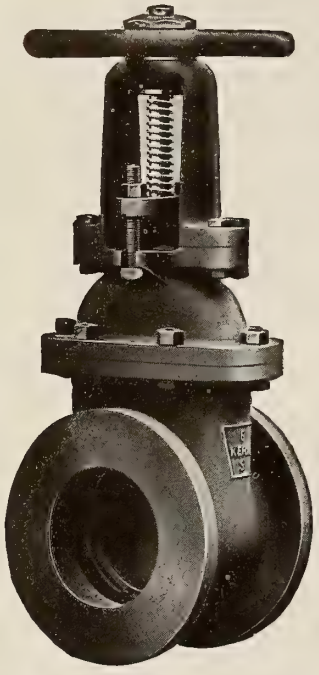
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There is shortly to be issued a bulletin showing workmen what their rights are under Workmen's Compensation Act, how their case can go through the proper channels provided by the State, instead of claimants rushing off to lawyers.

Inspection Reduced to a Science

To show how this matter has become an engineering problem, we are reducing this whole work of inspection to a science and utilizing all means to show through inspection, first aid, physical examination, organization of special committees, inspection service, labor turn-over and detailed statistics, how this accident problem may be solved.

It is really passing from a legal problem and from an insurance problem to an engineering problem. How can we cut these expenses down to a minimum and limit this heavy insurance cost upon us? No matter how you do it, whether you let liability companies come in or wipe them all off, as in Nova Scotia, you have had the benefit of the experience of these different sections of the country. You have taken that much advanced ground in this matter, and yet, even in one year, you realize that it is a very costly proposition.

There is only one way, namely, to meet it co-operatively. You have planned your insurance that way. Support this accident prevention work in the same way. I know of no other way of making this first step than by fostering this Safety Council that shall be formed by members who shall pool their experience, shall get the best advice from best sources and tackle this thing in an up-to-date manner.

In these days we have got to do something spectacular. We want everybody doing it. Men are being hired from this shop and that shop in spite of our codes of business ethics. You want to hire "safe" men.

Everybody must be doing it and we must approach this subject of safety in the community, as well as in the workshop, so that people will be *thinking* "safety."

We are going to begin a real drive on these problems until by and by our whole industrial community is going to be made "safe."

You must begin to get your workshop safe to prevent accidents and safeguard against diseases. The whole plant may become very much like a university, where everybody is willing to cheer for their workshop. In our shop we have recreation rooms, dancing classes, etc., and doing everything to make employees feel they are in the best and most sympathetic organization for which they can possibly work. Men stay with us and it is not altogether a matter of dollars and cents. Even when a more alluring offer comes along, his argument is. "They take an interest in my family, send nurses when accidents happen, help me buy potatoes and supplies in a co-operative way." They realize that the industry is a sort of a family, a home, and it is a wrench if they have to leave.

Material Aim of Safety Work

The material aim of safety work is cutting down expense, by having all these industries that are near together co-operate. Organize as you have organized this Organization in close co-operation with it, until this problem is solved by the industries themselves; until we can go to the legislators and say, "It is not necessary for you to pass so many laws restricting legislation; this is a matter of education; our manufacturers are educating their workmen, and instead of imposing upon us laws, gives us all the encouragement from the State that you can."

I think that appeal is going to result in a great benefit to us, not only in legal and political matters, but will serve to introduce a better spirit in the workshops.



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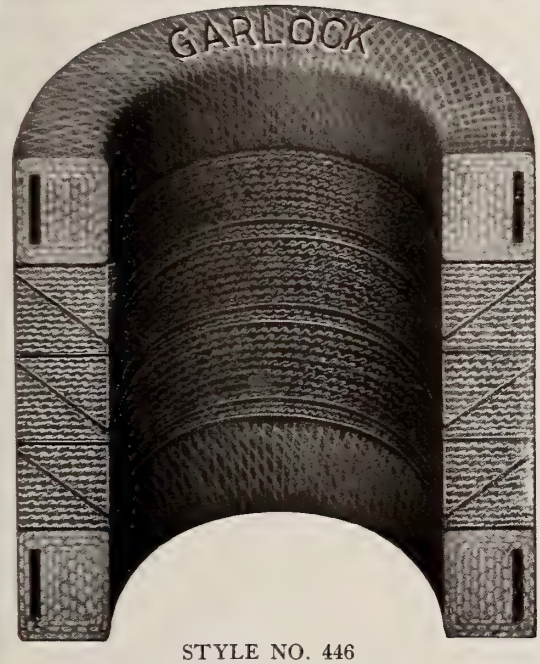
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Cranberry Cultivation in Nova Scotia*

In a Good Season the Annual Yield of Cranberries from the Bogs of Nova Scotia is 7,000 Barrels, and the Output is Increasing—As Canada's Annual Consumption is 20,000 Barrels, Mostly Imported, there is an Opening for Much Greater Production in the Dominion

By RITA CHISHOLM FRAME

CRANBERRY growing in Nova Scotia has already passed the trial stage and may in good faith be termed as an industry of the Province. Although the amount of land usually devoted to the cultivation of this fruit is as yet comparatively small, during the past few years several small bogs have been planted in different counties of the Province. The chief of these are situated in the Annapolis Valley, but there are some bogs also worthy of notice in Lunenburg and Shelburne Counties, some in Cape Breton, as well as at other points where favorable conditions for this berry culture have been found to prevail. In 1916 there was planted a bog area exceeding three hundred acres. Where the bogs have been cared for and all requirements attended to, the results have proved gratifying, in fact gratifying enough to create an impulse among the provincials to resolve to plant more bog area and to remove the necessity of importing cranberries into Canada.

There is no reason why Canada should not supply her own market with this Nova Scotia fruit. The annual consumption of cranberries is some 20,000 barrels, the greater part of which is imported from Cape Cod. In a good season the annual yield from Nova Scotia was as high as 7,000 barrels.

The cranberry area could be increased threefold. There is a good acreage of natural bog in Kings and Annapolis Counties, and also in other parts of the Province, which could be turned to good account by the production of cranberries.

Another thing—cranberry production forms a helpful, auxiliary branch of agriculture to the farmer. It is an independent resource not depending at all on most of the other branches of farm production, and the demands of its cultivation can usually be met with at times of the year which are not usually considered the farmers' busiest seasons. To quote Bishop, "successful cranberry culture depends upon soil, drainage, an abundant supply of sand and water privileges."

(Here follows a technical description of the methods employed in cranberry cultivation.)

Varieties of Cranberries

As a rule the fancy varieties of cranberries are usually of large size and for this reason poor keepers by reason of their having too large seed cavities. This makes them unsatisfactory products for shipping purposes. The standard varieties, better known, however, in Cape Cod than in Nova Scotia, are: Early Blacks; Late Howes; Perry Red; Voses Pride. The last named is in form like a tiny pear. The three first named, Early Blacks, Late Howes, and Perry Red are what is known as the cherry or olive-shaped variety and are the kind of berry cleaned up from the bog the most readily.

Certain native varieties have been cultivated with great success in Nova Scotia. There is a berry grown in Kings County which has been pronounced by experts in Cape Cod to be of the very first class. It ripens early, is hardy and very prolific, has an excellent flavor and keeps the best of any variety known. In appearance in varies from bell to olive shape. This typically Nova Scotian variety also takes on color well which is a splendid quality. The late coloring berries should be avoided as they are not considered of as much commercial value as the other varieties.

Harvested in September

About the middle of September is harvest time for the cranberry crop in Nova Scotia. About two weeks later would be a better time but it is almost certain to be too frosty and, if left, the berries would be in danger of being nipped. The longer they are left on the vine to ripen the better. Berries that are picked green have a pale unhealthy color and sometimes shrivel up after storing. Another precaution—berries must not be picked from wet vines. Picking cannot be commenced until after the dew has thoroughly dried off.

The very best method of picking is by hand, but this at the present time is mostly impracticable owing to the cost of labor. Therefore, devices known as scoops are used to gather the berries. These are roughly constructed of different widths. I have just seen a model about 20 inches wide with teeth made of hollow metal. This scoop is placed sideways along the vine and an upward motion pulls the berries up with it, and they fall backward into the scoop. When scooped up the berries should be emptied into bushel baskets or cheap boxes of some sort. There are several cheap grades made from lath with a cleat on the end for strength. Slight spaces should be left between the lathing for circulation.

The berries should stay in these boxes with whatever leaves and vines they were gathered until ready to be transferred to barrels for shipping. It is not long since the old custom of taking the barrels to the bogs to fill them has been condemned. It has, however, at last been condemned both on account of its having allowed foreign matter to be picked in with the berries and more particularly because the temperature of the berries, if put in the barrels directly after picking, is bound to rise. Fungous disease then sets in and causes decay.

It was this carelessness on the part of Nova Scotian farmers that led experts to believe, erroneously, a couple of years ago, that Nova Scotia berries did not stand up as well as those grown at Cape Cod. In the ideal packing house, where the berries should be taken immediately after picking, an even temperature must be maintained and the house must be closed tightly in damp rainy weather and opened up and ventilated thoroughly in dry weather.

Decay is hastened undoubtedly by injuries received in handling and cleaning. Therefore, constant care should be taken not to injure the berries at all or at least as little as possible in the process of preparation for shipment.

Cost of Picking Cranberries

The cost of picking with a heavy crop used to be about 10 cents per barrel. Ordinarily in the Province, however, with the average crop, the cost to pick a barrel is 60 cents or thereabouts. An operator is supposed to pick on an average of six to ten barrels a day. Of course this is gathering

* This essay on one of the little-known industries of Canada was written by a student of Dalhousie University, Halifax, to whom was awarded one of the INDUSTRIAL CANADA prizes.

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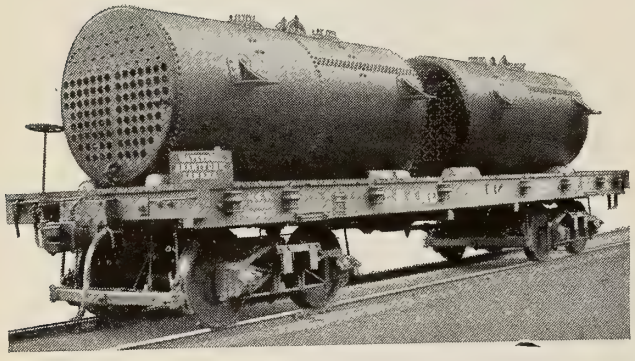
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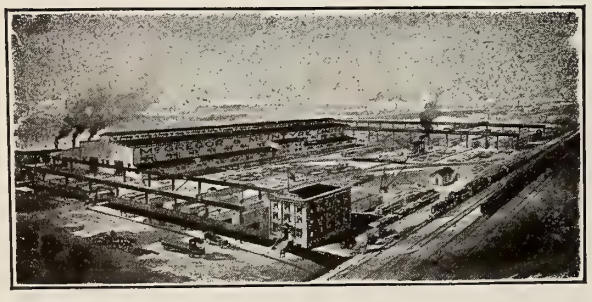
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by mechanical means. The old way of handpicking by the quart has become too expensive. Once upon a time a quart could be gathered for a cent. Then the price increased and cheaper means had to be sought for picking, since 2 cents a quart hardly gave the grower the profit he ought to expect.

Shipment of the Crop

The bulk of the cranberry shipment is not required directly after packing but is more in demand as the cooler seasons come, toward Christmas. Early shipments are therefore more or less limited. However, there are different theories existent among the growers as to the period when cleaning the berries is most advisable. Some believe it is best to clean up the berries as soon after picking as possible, accepting lower prices for their fruit by immediate sale, but saving waste from shrinkage and deterioration of the fruit itself. In this case the cost of cleaning up is less than if kept until the winter when the prices received for the fruit would be better. I believe both methods are followed with equal success.

Cleaning the Berries

The machine through which cranberries are milled is called a separator. There are several makes. A successful variety as a hopper at the top into which the berries are turned from the boxes which they have been picked in. A fan below drives out all light dirt that may have collected during the gathering of the fruit. Soft and decaying berries are thrown out by a device called a "bounding board." The perfect fruit goes into barrels. Wormy berries must be handpicked. This is one of the occupations in which women have proved themselves worthy of a place in farm work.

There is no standard barrel used in Canada except the Cape Cod barrel is taken as standard. This is quite natural as the Cape Cod markets are in direct competition with Canadian markets.

The Cape Cod standard barrel weighs approximately 120 pounds and holds from eighty-five to ninety quarts. When filled the barrel is thoroughly raked down and pressed tightly with a lever. There is a great necessity for this tight packing for loosely packed fruit will decay quickly, whereas tightly packed will not. Another thing, dealers are chary about buying loosely packed barrels on account of probable losses thereby.

The Price Commanded

The price for cranberries has, I believe, never been less than five dollars per barrel except on very rare occasions. The present price is $10 to $15.

The demand is increasing rapidly in Canada, and large imports have been annually necessary from Cape Cod. This should not be the condition of things. There is enough land in the Dominion, bog land suitable to cranberry cultivation, to raise a much greater supply than can be depended on now. The bog acreage could easily be increased threefold. If this were done it would be a great economic benefit to Canada, by reason of the fact that the money which goes to import cranberries could be kept largely within the boundaries of Canada and the land would benefit by the cultivation of bog areas. Nature has given Nova Scotia the material. Demonstrations have proved beyond a doubt that cranberry cultivation is a profitable industry. The prices are good, the demand is great. Even shipping is scarce at present; there is a good time coming in the future and in the meantime the production of a flourishing Province can be consumed by a healthy Canada with an appetite for all good things.

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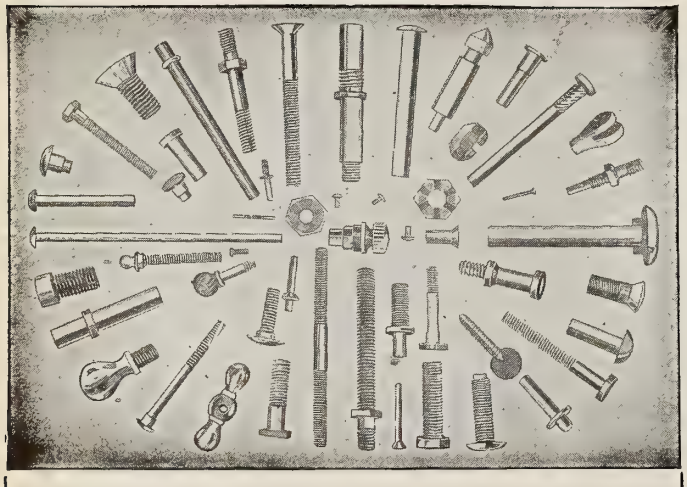
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Large Profits in Farming in Ontario

Over Ten Thousand Dollars Cleared from One Hundred and Sixty Acres in Halton County Last Year

By ROB ROY
(From "Toronto Sunday World.")

The first Canadian census in 1871 gave us the fact that 80 per cent. of the people were on farms and only 20 per cent. living in towns and cities. Since that time there has been a tremendous immigration from the country to urban centres, until to-day less than half of the people of Canada are on farms. Many and various are the reasons given for this change, the one most generally given being that the older provinces are so meagre that young pople are led to the city streets by the jingle of the dollars.

Is this so? We give you the actual returns of a 160-acre farm in Halton County for 1918. This is an ordinary farm, devoted to mixed farming, under ordinary conditions. No specialty had been developed that was not open to every farmer. Pure bred stock sold at fancy prices were not kept, as all were grades, not a pedigreed beast on the place. No scheme of co-operation is in force in the locality to get retail prices of products. The output of the farm was put on the market and sold wholesale in the ordinary way. Neither has Mr. Cook any strapping boys to help him. His children are little tots and all work not performed by himself has to be paid for.

The following are the sales for 1918:

Thirty fat cattle, $3,840; 40 veal calves fattened by ten cows, ten of their own 30 brought $1,400; 40 fat hogs, $2,250; 24 lambs, $480; 200 lbs. wool, $150; 42 geese, $145; 1,100 dozen eggs, $550; 110 lbs. of Alsike seed, $1,850; 30 bushels Alfalfa seed, $750; 48 tons of hay, $1,200; 450 bushels of wheat, $900; 800 bushels of barley, $800; 65 barrels of apples and small fruit, $200; 100 bags of potatoes, $125; total, $14,640.

How it Works Out

The expenses were as follows: Wages, $500; taxes, $120; threshing and silo filling, $170; mill feed, bran and shorts, $1,000; 30 feeders a $60 each, $1,800; 30 calves, at $5 each, $150; blacksmith bills and machinery repairs, $200; total, $3,940.

Thus the net profits last year from this farm amounted to $10,700.

Two hundred dollars only is allowed for blacksmith bills and machinery repairs, nothing for new machinery. A complete outfit of machinery is in stock, that, with suitable repairs, can be made until prices become normal again.

While the cash returns are gratifying and worthy of any man's best efforts, Mr. Cook has many advantages not shown by these figures. The fine old family residence and extensive lawns are such as would fill with joy the heart of either poet or artist. There the multitude of good things enjoyed by the family—milk, cream, strawberries, raspberries, currants, apples, all manner of fowl, the real hams and spare ribs of their own production, mail delivered at the gate each morning, and telephone with long-distance connection.

A house and grounds equal to these could not be secured in any town for less than $1,200 a year, and this really should be included in the income. Then for years a motor has been kept, and the family has no grouch against the Toronto-Hamilton highway, as many a good spin they have along it.

While for a few weeks in haying and harvest the strenuous life is led, yet many a trip is taken in "the summer time" to spots of beauty, and picnics are held along babbling streams.

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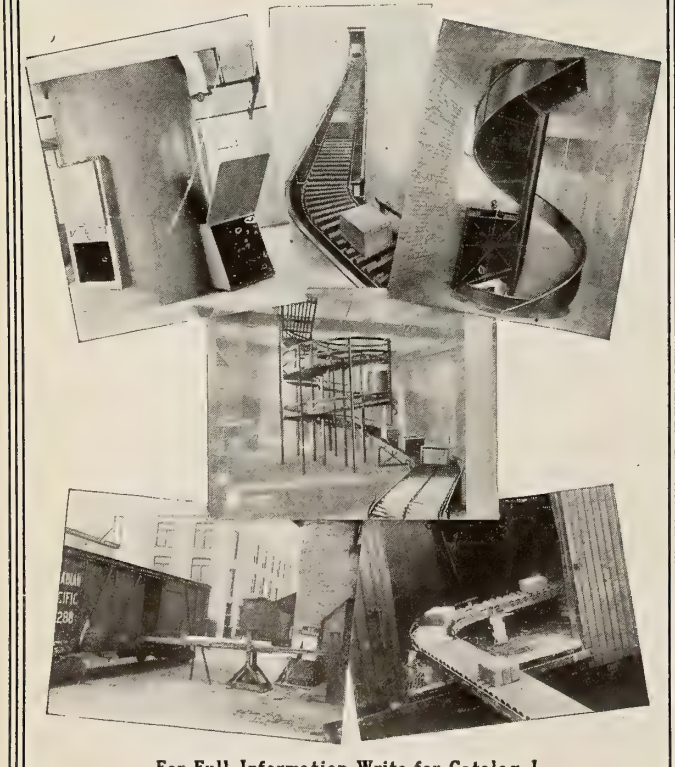
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Activities of a Big Winnipeg Industry

How the Manitoba Bridge and Iron Works Have Changed Over From a War to a Peace Basis

By MR. LYALL
Secretary-Treasurer and Assistant Manager, Manitoba Bridge and Iron Works, Winnipeg

In reviewing the activities of this company and its allied organizations during the period of the war, we venture to express the opinion that possibly metal working concerns in Winnipeg were affected to a lesser degree by war orders than any other part of Canada, and that, therefore, transition from a state of war to conditions of peace will not necessitate such changes in organization and nature of products as in other sections of the Dominion.

Beginning in 1915 this company was engaged in the production, in one of its departments, of 3.19 high explosive shells, the first which had been made in Canada at that time. About the end of 1916, when the need of these shells became less urgent, contracts were taken for 4.5 shells, and the same department of our plant was engaged on this work until April, 1918. In November, 1918, operations were commenced upon the production of 3-inch anti-aircraft shells. This order has since been cancelled and no munition work is being carried on.

During this period of three years or more approximately 250,000 shells were produced, and general results demonstrated the efficiency of the labor employed in their production as being equal to any other place in Canada. Other departments of the plant, with the exception of the structural shop, have been kept reasonably busy during that period on general contract work.

The Bridge Company of Winnipeg comprises the following departments: Bridge and structural shop, capacity of 1,200 tons per month. In addition to the ordinary structural machinery, equipment for the upsetting of bridge rods and "I" bars to 4 inches diameter is in use. The company makes its own rivets, and produces for sale a large tonnage of both rivets and bolts.

Frog and switch shop. Frogs and switches for standard railways are being manufactured steadily on a competitive basis.

Plate and tank shop. This department is fully equipped with hydraulic rivetter and flanging presses, and has been engaged for the past sixteen months on tank work for boats and oil storage.

Gray iron foundry. This department is housed in a very modern foundry building, with an overhead electric crane serving the full length and width; melting capacity is 25 tons per day, and with the exception of 1,500,000 cast iron plugs produced for the Imperial Munitions Board, it has been engaged exclusively upon contract work for the past three years.

Galvanizing department. This plant was installed and galvanizes material by the Meaker electro galvanizing process, and has been kept busy through that season on general contract work, and material for ships, all of which have had to pass most rigid inspection.

Machine department. This portion of the plant has been engaged upon the production of grain elevator, transmission equipment, and boat machinery, and will not feel the change of conditions to any great extent.

The Manitoba Bridge & Iron Works also control the Manitoba Rolling Mill at Selkirk, and during the past six months have been operating night and day in production of iron and steel bars for domestic consumption and export. They have a capacity of 1,500 tons per month in this mill.

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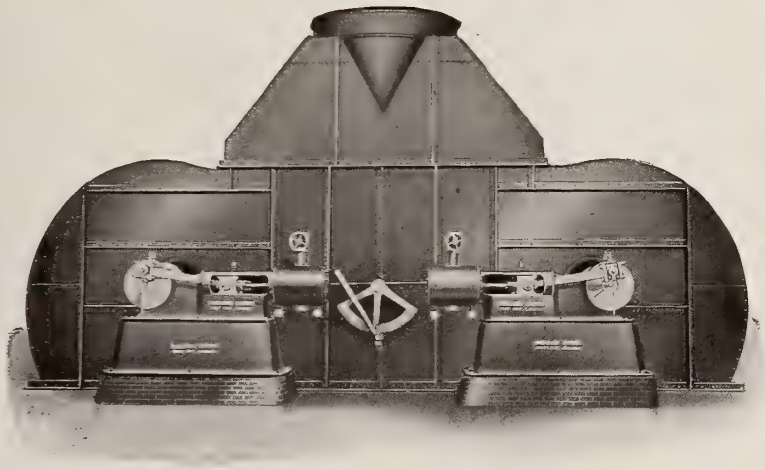
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Programme of Reconstruction in the United States

Proposed Legislation Now Before Congress

RECONSTRUCTION, following the war, is being discussed fully in the Congress of the United States at present. The following programme, introduced recently for consideration of the representatives, contains many problems which are being dealt with by Canada:

1. Problems affecting labor, including—
   (*a*) Unemployment which may follow the war.
   (*b*) Utilization of discharged soldiers and sailors in civil employments.
   (*c*) Conciliation and arbitration of labor disputes.
   (*d*) The relation of men and women in similar employments.
   (*e*) Substitution of female employees for male and vice versa.
   (*f*) Feasibility of organizing permanent employment agencies.
   (*g*) Requirements for labor after the war, both in agricultural and industrial occupations.
   (*h*) Distribution of labor.
   (*i*) Employment of surplus labor on public works of which the construction or completion has been suspended due to the war.

2. Problems affecting capital and credit, including—
   (*a*) All matters relating to trusts and combinations.
   (*b*) Federal loans to private enterprises.
   (*c*) Federal supervision of capital issues.

3. Problems affecting public utilities, including—
   (*a*) The establishment of a railroad policy after the war, and the relation of the Interstate Commerce Commission to the railroads.
   (*b*) All questions relating to communication by wire.

4. Problems resulting from the demobilization of our industrial and military war resources, including—
   (*a*) The disposal of surplus Government properties and supplies in this country and abroad.
   (*b*) The conversion of munition industries into those of peace.
   (*c*) The demobilization of the war strength of the Army and Navy, and the disposition of the men who have been in the service.
   (*d*) The demobilization of civil war workers.

5. Problems affecting our foreign trade, including—
   (*a*) The development of new markets.
   (*b*) Combinations for the purpose of increasing our selling facilities.
   (*c*) Changes in our banking facilities necessary to co-operate with such trade.

6. Problems affecting the continuance of existing industries and the establishment of new industries, including—
   (*a*) The supply and control of raw materials.
   (*b*) The encouragement of the production in the United States of articles that have not been made in this country heretofore.
   (*c*) The encouragement of private enterprise in the development of the resources of the public domain.
   (*d*) The utilization of a tariff on imports as a means to protect and encourage home industries.

7. Problems relating to agriculture, including—
   (*a*) The advisability of continuing after the war price-fixing of food products.
   (*b*) Federal loans to farmers.
   (*c*) Distribution of food products.
   (*d*) The allotment of lands to returned soldiers and sailors and their establishment in new homes on the public domain.

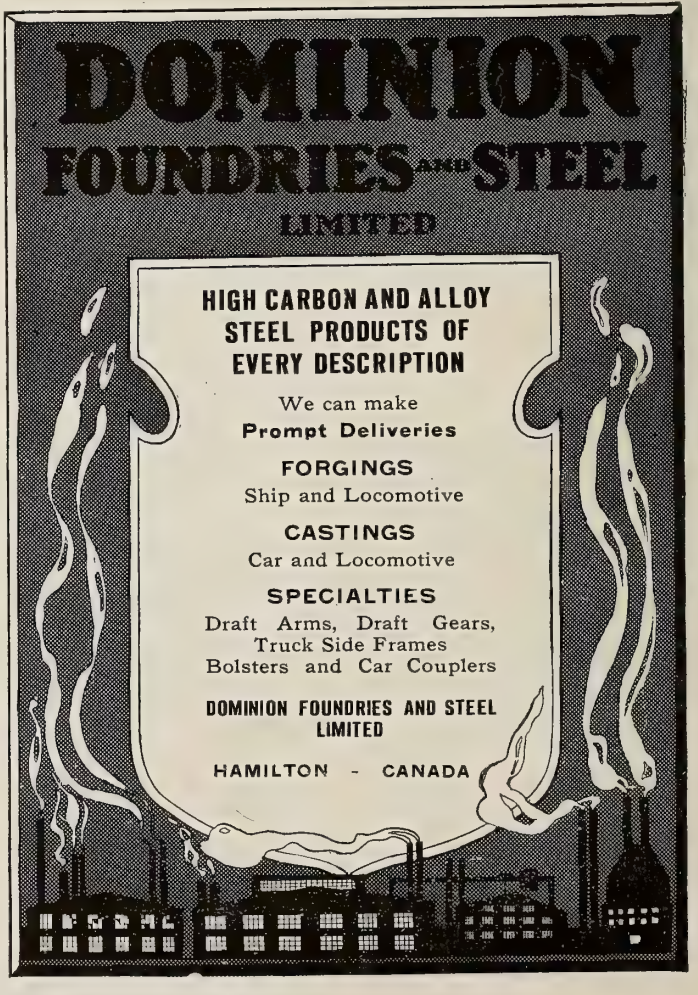
8. Problems affecting the adequate production and effective distribution of coal, gasoline and other fuels.

9. Problems relating to shipping, including shipyards, and especially in regard to the sale, continuance of ownership, or leasing of both yards and ships.

10. Housing conditions and the disposition of houses constructed by the Government during the war.

11. War legislation now on the statute books, with reference to its repeal, extension or amendment.







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Canada's War Linen Industry

By M. J. P.

(From "Conservation")

SENDING flax seed to Ireland seems as anomalous as carrying coals to Newcastle, but the war has been full of surprises. Canada is actually supplying Ireland with a considerable portion of her flax seed requirements, mainly from Ontario. More than this, we are rapidly building up a flourishing linen industry all our own. Before the war nearly all the flax grown in Canada was for seed only. Now, the greater portion produced in Ontario is grown primarily for the fibre. Saskatchewan and Alberta, also heavy flax producers, grow it exclusively for the seed, and Manitoba grows it almost entirely for that purpose.

Ontario's rapid rise in flax growing reads like a fable. Years ago, considerable flax fibre was produced in that province, but the industry slowly went down before severe European competition. In 1915, Ontario had 4,000 acres in flax; in 1916, 5,200 acres; in 1917, 7,372; and in 1918, 15,925 acres. The war is responsible. Not only did it seriously affect the European production, but it created a tremendous demand for linen, both for airplane wings and other purposes.

Heretofore, our small linen manufacturing industry depended for its raw material almost entirely on foreign yarns. As the war went on, supplies of these began to dwindle, culminating early this year in Great Britain, the main source of supply, prohibiting the export of all linen yarns. Our linen mills had either to close down or go into some other line of manufacturing. Some went temporarily into cotton spinning, and a campaign was at once begun for stimulating the flax fibre industry in this country. As a result, production of flax fibre has been tremendously increased, mills are being equipped with linen thread-making machinery, and, very soon, Canada will supply her own linen requirements, send a great deal overseas for war purposes, and ship considerable to the United States and Australia, who are anxious to take any surplus.

Will European competition drive the industry out of business as before? Hardly. The manufacturers have seen to that. Representations were made to the Dominion Government, as a result of which an Order-in-Council was passed last month granting a bounty on linen yarns made in Canada. Then, too, the manufacturer's old friend, the protective tariff, comes to their aid. Duties of from 20 to 35 per cent. on the finished product are imposed, besides a war impost of 7½ per cent.; whilst raw material is admitted free of duty. With such encouragement, it will not be the Government's fault if we do not have a prosperous linen industry after the war.

The total value of the lumber production of Ontario in 1916 was $17,848,675; that of British Columbia, $12,932,711; that of Quebec, $13,722,883; that of New Brunswick, $8,384,397; of Nova Scotia, $3,054,309; of Saskatchewan, $1,189,351; of Manitoba, $850,879; of Alberta, $263,996; of Prince Edward Island, $118,148, according to Forestry Branch Bulletin No. 62.

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An American Bank's View of the Labor Situation

In the following article the National City Bank of New York discusses the relations between employer and employe. It points out that in determining wages and hours of labor, the public, which pays the cost, must be considered, and emphasizes the fact that while under certain conditions wage-earners may force higher pay and shorter hours, in the end they will have to make restitution because they are the chief body of consumers.

(From the "Manufacturers' News")

IN this country wage rates are generally maintained, and most employers wish to maintain them, at least until a readjustment can be made concurrently with the decline of articles of common consumption. To a great extent wages and prices are interlocked, high prices being due to high wages paid to producers. If the pay of one group of workers is reduced and the prices of their products decline, the consumers of these products are gainers at the expense of that group of workers. The latter then have a just claim that reductions shall be made in the goods which they have to buy. Fairness requires that all shall come down together.

The reductions which will affect the greatest number of people at once are those in foodstuffs and clothing materials. The producers of foodstuffs are so many in number and so widely scattered that any general combination among them to maintain prices has always proved impracticable. Their products respond quickly to the conditions of supply and demand, and are now falling, although the world food situation is not yet clear. Certainly they will decline largely by the end of another crop year. But as their products come down the farmers will naturally and reasonably claim reductions in the prices of what they must buy, and this probably will involve wage reductions in other lines.

The Crucial Question in Industry

The crucial question in every industry is not a theoretical or sentimental one, but the practical one, whether the products of the industry can be sold in sufficient volume on a given level of prices to afford employment to all the people who are looking for work in that industry. There may be different theories about it in advance, and the opinion of the wage-earners may be as good as that of the proprietors; certainly one side has as good a right to its opinion as the other. But eventually there will be a demonstration, and then it will be good policy for both sides to conform to the results. The public is the final employer, and it doesn't pay anybody to quarrel with the public for not buying his products or giving him employment. The public buys what it pleases to, and the wise man adapts himself to its wishes, and if he cannot attract its patronage at one price or in one line, shifts to another price or another line. The labor organizations are definitely of the opinion that it is better for them to put up with part time rather than reduce a wage rate which has been established, and they may be right about it if it takes a fight every time they get their wages restored. But, on the other hand, if low production and high prices delay the general recovery of industry by causing a reduction of consumption, it is well to remember that the laboring people of the country are suffering on both sides of the deadlock, for they are the chief body of consumers as well as of wage-earners.

The same is true of the effort on the part of the wage-earners to shorten the work-day. The length of the work-day is a matter for conference and very careful consideration in all its aspects. Is it wise to add to the burdens of industry at this time? We will not affirm that shortening the hours to eight or seven and a half will always reduce the output and increase the cost, because that is a fact which can be determined best by actual test in the different industries. If it does not reduce the output nobody will object to it; and, on the other hand, if a general reduction of the hours of labor does reduce the output and raise the price of every article of consumption, the laboring people, who are the chief body of consumers, will find the burden inevitably falling upon them, not by contrivance or manipulation, but because they are consumers.

One very large experiment of this kind has been tried in the last two years, by reducing the unit day of railway employees to eight hours. It is true that the hours of labor were not commonly reduced to eight hours, but probably nobody ever supposed they would be, and however that may be, railway charges have gone up twenty-five per cent., and the increase enters into the cost of living of every family in the country.

The effect would be more serious if the hours of trainmen actually had been reduced to eight hours, because then a larger labor force would be required to operate the roads, and men would be withdrawn from other industries, reducing production and making other living expenses higher.

In saying this we are not pronouncing against the eight-hour day, or assuming to fix the number of hours which should be worked in any industry. We are only stating what must follow if a reduction of the hours makes it necessary to employ more workers to produce a given result. The effect will be distributed over the entire consuming public, and it will be the effect of scarcity. It may be best to reduce the hours of labor in spite of this effect. Perhaps it would be better for the entire population to get along with less of the things they want, and have a shorter work-day; but will everybody be satisfied with this result?

Economic Side of the Argument

There is, of course, an amount of exertion, varying with the kind, beyond which the worker deteriorates or fails to recuperate. Certainly labor should not go beyond that. There is no economy in going beyond that, and the best interests of society forbid it. It has been demonstrated in some industries that men will do approximately as much work in eight hours as in ten. That ought to settle the question in those industries without argument. In other cases it may be urged that although there may be some decline in production, there is a saving of human wear and tear which prolongs the efficiency of the worker. This is a valid argument when supported by the facts. It may be also urged that shorter hours, with more time for leisure and reading, will give a higher class of workmen, who will contribute to the development and efficiency of industry, and thus produce eventually even higher economical results. This likewise is a valid argument, but

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wherever the proposed action will result in a diminution of output it must be remembered that counter considerations of precisely the same character must be taken into the account. The effect of reducing the supply of goods to consumers—who are the workers themselves—must be weighed against the benefits derived by the same people from working shorter hours.

Balancing the Value of Things

If a family was living on an island, with no communication with the outside world, supplying all its own wants, the direct relation between its labor and the satisfaction of its wants would be very clear. It would decide for itself whether it would obtain greater benefits by working longer hours or having more leisure. In industrial society the situation is more complicated, but the question is the same. If the hours of labor are to be reduced to the extent of curtailing production, everybody should understand just what it means to himself and his own family. What is he willing to give up, that he now has, for shorter hours? Is he willing to do with less milk or bltter, or clothing, or house furnishings, or with a smaller apartment, or less fuel, or fewer amusements? It comes at last to balancing the value of the things we want against the value of the time we would like to save from labor, measuring both by the same estimate, to wit, how will our highest interests and the progress of society be best promoted?

The Cost of Idle Machinery

In many of the modern industries the physical labor is light, consisting of tending machinery which is more or less automatic. Under such conditions evidently labor cannot render as much service in eight hours as in ten hours, for the machinery cannot do as much in eight hours as in ten hours, and when labor stops the machinery stops; but the overhead charges go on. In the industries where a great investment of capital is necessary to secure high efficiency the overhead is a very important portion of the costs entering into the selling price of the product. In these cases the question arises of the feasibility of having several shifts on the machinery, but against this there are counter influences, and particularly the fact that it requires labor in unnatural hours, which is unfavorable to health, always condemned for women, and more costly in various ways.

Competition is necessarily a factor in such questions, but if competition and the question of profits were eliminated there would remain these counter considerations affecting the interest of the consuming public. The cost must be paid by the public, which is by no means a conclusive argument against shorter hours, but a fact not to be forgotten.

Balanced and Harmonious Industry

The argument that shorter hours are needed in order to provide employment for all the workers is valid only as an expedient to help over a temporary situation. No policy that raises costs and curtails distribution can provide more work. Employment is created, consumption is increased and the general comfort promoted by reducing costs. There is plenty of work for all when industry is well balanced and harmonious. In a great factory where thousands of workmen are distributed in numerous departments, but working upon different parts of a joint product, their numbers must be properly adjusted to each other, or there will be idleness. In a shoe factory, for example, there must be no more workmen making heels than are required to heel the shoes made in the other departments, and the industries of a given population must be balanced in like manner. It is possible to over-develop a given industry in proportion to the rest, and it is possible to have a temporary derangement of industry from such a cause as the war that a general state of over-production and unemployment is normally impossible.



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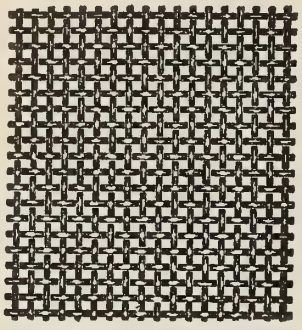
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TRADING IN FOREIGN MARKETS

The great problem which faces Canada to-day is to create a market abroad for her manufactures, and not only her raw materials; to create a balance of trade whereby she will be able to pay for her necessary imports of raw material and manufactured commodities by her own exports of manufactures or raw material.

By J. H. HAMILTON.
(From "Harbour and Shipping," Vancouver.)

London and Hamburg are among the largest and busiest import and export trade centres in the world, and probably are as complete a school as any that could be found (I am speaking of pre-war days) in providing an insight into the thousand and one items of commercial knowledge which are an essential part of the equipment of the individual or firm desirous of entering the import and export business. Hamburg as a port is, of course, dead to-day; but she was not always so.

If the fifteen years spent by the writer in the import and export business in those two cities taught any lesson, it was that there is no "easy road to success" in buying and selling merchandise in countries abroad, and that there are certain essential differences between this class of trade and trade in the home market, which must form a fundamental basis for different methods to be employed to build up a successful foreign connection.

In Canada we have many successful import and export merchants, but, speaking generally, we have, as a nation, not yet aroused ourselves to the opportunities for trade development along this line. Many of our manufacturers and producers look upon foreign markets as "too difficult to get into," and many large buyers of imported products are content to draw their supplies from imported stocks held south of the line.

As to selling such basic staple commodities as wheat and metals, the problems of finding a market are not severe, the values in the world's markets are well determined, and the grading and quality are standardized.

Canada's Problem

The great problem which faces Canada to-day is to create a market abroad for her manufactures, and not only her raw materials; to create a balance of trade whereby she will be able to pay for her necessary imports of raw material and manufactured commodities by her own exports of manufactures or raw material.

The more successful we are, as a nation, in increasing the proportion of manufactured goods we export, the greater will be the employment in our factories, the greater our national pay-roll. Pig-iron, made into steel, increases in value enormously. Further manufactured into hair-springs for fine watches, its value rises. The difference is these values represent the price paid for the skill and labor expended in improving the quality and usefulness of the primary material.

This is not a "lesson in political economy." It is a plain, hard, business truth. Great Britain knew it away back in the seventeenth century; Germany made use of it in the nineteenth century, and the Japanese are learning it in the twentieth. England and Germany became great import and export countries when they learned that they could take the raw materials, not only their own but those of other countries, "improve" them by manufacturing processes, and sell them (plus the cost of manufacture) to the people who needed them in other lands.

It does not require much argument to prove that the class of export business most to be desired is the export of manufactured goods—the more highly manufactured the better. This conceded, it follows that the class of the community who should be directing the greatest attention to the possibilities of the export trade are the manufacturers. Are our Canadian manu-

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facturers devoting much attention to this subject? In isolated instances, yes; but as a whole, emphatically no. I am not expressing an opinion, but stating a fact, which can be proved by consulting the trade statistics of Canada.

Without going deeply into the economic question, it is conceded that Canada must enlarge the scope of her export business if she is to maintain her commercial stability.

"To retain our present volume of trade," said Hon. Mr. Ballantyne, on the occasion of the launch recently of the first of Canada's National Marine steamers, "and to take the place of the vast sums of money that have been expended during the past few years in Canada in the making of munitions, it is imperative that we should vigorously go after export trade."

The Government of Canada wisely is establishing a National Mercantile Marine—to facilitate the national foreign trade expansion. The mere possession of ships, however, will not create that trade, just as the non-possession of ships does not prevent foreign trade. To prove this assertion, consider Belgium, one of the largest per capita exporters of manufactured goods, owning practically no ships; and Norway, one of the largest per capita owners of shipping, having a comparatively small foreign trade.

Likewise the United States, until recently, had practically no mercantile marine of her own. In the period 1900 to 1910 only eight per cent. of the foreign commerce of the United States was carried in United States ships. Seldom was the Stars and Stripes seen in the Port of London, and I remember hearing it remarked on 'change in Hamburg, "There are two American ships in port," quite an unusual occurrence. And yet the trade of the United States with the Ports of London and Hamburg was enormous.

Germany's Methods

Germany, however, soon learnt the lesson that owning her own ships was a useful preliminary to using those ships, especially in the interest of her own foreign trade, and by Government subsidy, special facilities to German shippers, and a hundred and one peculiar and devious ways, she succeeded in making the German-owned lines a most valuable adjunct to the building up of her overseas commerce.

But the ships were only an adjunct; they did not create the trade. Hate the Germans as we do, and with just cause, we cannot deny that they showed remarkable success in building up in the short space of twenty-five years an enormous export trade in manufactured goods to every market of the world, utilizing in the process every scheme and method which came to their hand to attain their object—trade expansion.

I trust we shall never in Canada seek to emulate German methods in trade or anything else, but the one basic principle which the Germans employed, which is fundamentally sound and must be utilized by all who seek foreign trade, is "study your market in which you desire to trade."

The British, by their excellence of manufacture and superiority of quality, could sell goods anywhere. Until competition became keener, it was not necessary to make goods especially designed to meet the fanciful requirements of foreign buyers. "Take it or leave it. If it is good enough for us, it is good enough for you," was the general attitude until the closing decades of the nineteenth century. But competition, especially that of Germany, the United States and Belgium, altered her policy in this regard, and Great Britain soon proved that she could successfully maintain her relative position in export markets by adopting competitive methods along this line.

Canada's great opportunity for development of foreign trade lies especially on the Pacific, and that is the aspect which interests us on the Pacific Coast more particularly. There are, indeed, many opportunities for expansion of our trade in manufactured goods, but we must, as a nation, wake up and grasp them. If we do not, then they will be lost.

Three years ago an incident happened which demonstrated forcibly the lack of interest displayed by Canadian manufacturers

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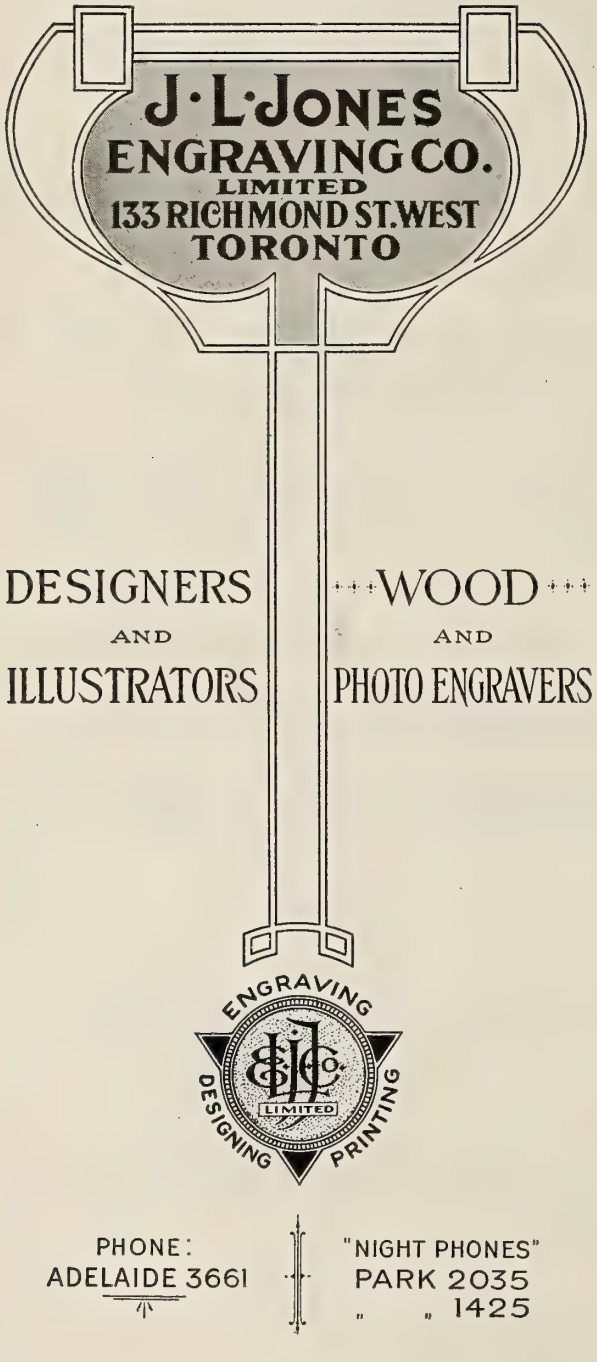
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in the possibilities of the Oriental markets. It is the custom, apparently, of the foreign consuls and trade representatives in the port of Shanghai to give a banquet annually, each on his "national day," to which all the consuls are invited. At these functions it was customary to figure on the menu as many items as possible which were the product of the official's home country.

The newly-appointed Canadian representative, on looking over the situation a month or two ahead of Dominion Day, found that nothing was obtainable in Shanghai bearing the mark "Made in Canada." He had to write to several firms in Canada, asking them to ship immediately, by parcel mail, some specimens of their wares, so that he might save the face of his country by showing that she does actually manufacture edible commodities.

And as a result of the samples sent out on that occasion, several orders were received by the Canadian manufacturers for trial shipments. The lesson is obvious.

Export Lumber

Take another instance—"the decline and fall of British Columbia's export lumber trade to Australia." Fourteen years ago thirty-five per cent. of Australia's imports of lumber from the Pacific North-west came from British Columbia. From that time the proportion has steadily declined until, in 1918, it is only three per cent. Various reasons are assigned for this decline, all of which are contributing factors; but the main, basic reason is that the British Columbia millmen neglected that market when the meteoric rise in the demand for the domestic market came. The prairie became the only market in view, and serious thought was not directed to the export trade. Special Commissioner H. R. MacMillian, formerly Chief Forester of British Columbia, in a report on his recent visit of enquiry into export lumber markets, stated, "The mills still exist in British Columbia, but they are not now in a position to compete successfully for the Australian trade with their rivals in the States. The American exporting companies are strongly in possession of the market." The few British Columbia mills which catered consistently to the export trade kept their trade. The others did not attempt to keep in the running, and to-day find that they have created a condition which is hard to overcome. This export lumber question is one which is worthy of quite special consideration; it is only touched upon here as an illustration.

India uses annually some five million tea chests. A large proportion of these used to come from the Baltic before the war. During the war Japan has secured the trade, making the boxes from British Columbia and United States fir and spruce. Fir is not very suitable, but spruce was scarce, and the Japanese had no suitable native woods. Enquiries are now in the market for spruce for Japan to make tea chests for India. India is in the British Empire, and our box factories are modernly equipped and already doing a considerable export trade to Australia, Great Britain and elsewhere.

Worth Going After

The point we are leading up to in these illustrations is this: If a trade is worth having, it is worth going after. The Canadian manufacturer must realize that buyers in markets abroad like to know with whom they are dealing. A personal visit of the principal or a well-posted and properly-accredited representative is appreciated. Personal touch is established, and the business relationship thus made is of a far more lasting nature than the ordinary business connection in the home market.

John Smith & Co., in the next town, give your traveller a nice order of goods this journey. Your competitor gets the order next trip because he cuts the price one per cent. John Smith knows your competitor as well as he knows you, or, if he doesn't, can easily find out because he is right there next to him.

With the buyer in foreign markets there is, however, a different psychology. He finds a connection pleasant and profitable, and is loath to break that connection if he can avoid it. Con-



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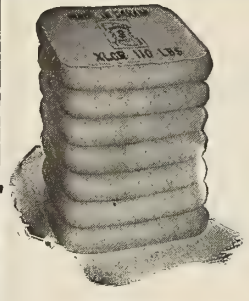
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fidence is a very large factor in maintaining relations with a firm in a distant country, and, once established, a business connection is of a more lasting character for that reason.

Correspondence Department

A criticism which is not uncalled for in regard to our present methods in Canada in conducting correspondence with customers in foreign markets, is that we are apt to follow too closely our national habit of "short, sharp, to-the-point" style, which is good, efficient and well understood by ourselves in conducting business among ourselves.

Buyers in foreign markets are, however, in the main, accustomed to receive correspondence couched in terms of great courtesy and exhibiting a desire to do all possible to establish what the French term "cordial relations," and creating the impression that it is the desire of the writer to exert effort to fill the needs of the buyer. An examination of some correspondence from Canadian houses of first-rate standing shows a miserable failure to grasp these fundamentals, exhibiting a lack of perception that, to be brief, one need not be brusque, and that to be courteous one must not be curt.

The correspondence of the "foreign department" must be conducted on a different basis to that of the "sales department," and the fact must always be borne in mind that a lack of detail—necessary and requisite detail—as to terms, conditions, packages, payment, documents, shipment, insurance, etc., is always irritating to the recipient. He must have this information before he can place orders with a full knowledge of actual import costs and conditions, and business is often lost to a competitor by reason of omission of requisite detail of this kind.

Our friends to the south have realized the value of personally visiting prospective customers in markets abroad. The Orient, India and Australia are to-day being well canvassed by hundreds of well-trained, expert Americans, and connections are being established which will last. A gentleman recently returned from a business trip to China told me he was the only Canadian in Shanghai at the time of his visit. And he was well repaid by his journey; he booked a $140,000 order during his stay there, and this was for manufactured goods "made in Canada."

Are We Asleep at the Switch?

There are a few concerns in Western Canada who have, during the past two or three years, actively canvassed the export markets of the Pacific littoral, and they are being repaid for their trouble. Eastern Canadian firms are just beginning to realize the value of this phase.

But, speaking in the broad sense, we are "asleep at the switch," and unless we awake soon we shall find the opportunity has dwindled to small proportions indeed. It is small use to try to sell "refrigerators to the Eskimos, or fur coats in Ceylon." The thing to do is to ascertain by personal enquiry what is wanted, and how and where it is wanted. We must, as a community, do this or fall behind in the trade reshuffle now in progress.

Canada must learn the lesson that to obtain foreign business for her manufactured goods she must send personal representatives into those markets, men conversant with the manufacturing facilities and having technical knowledge of the commodities produced, and likewise capable of meeting the buyer in the foreign market on his own ground, with courtesy, tact, and assurance of a desire to supply the needs of that market.

Also we must learn the lesson that to sell in foreign markets we must *compete*, in quality, price and delivery. The whole world is our competitor, and we can only sell goods we are in an economic position to sell.

If Canadian manufacturers, as a body, will adopt the old and tried methods, they will gain a measure of success. Once the foreign demand for Canadian-made goods is created, it will persist, for there is no good-will like unto the good-will of a foreign market.

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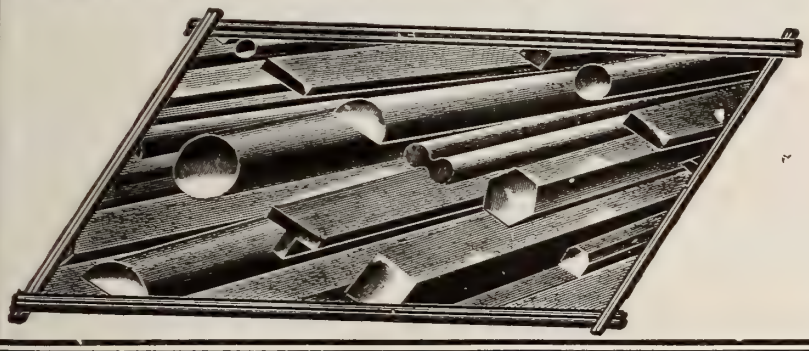
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EMPIRE LINKS IN COMMERCE FORGED

Aims of the Canadian War Mission in London are set forth; the general message of the mission is that Canada having demonstrated in the critical days her industrial and commercial qualities as a part of the Empire, now seeks a fair field and no favor in the time that is coming.

(From the "London Times.")

In November last a Canadian mission in London was appointed by the Dominion Government. It was organized by, and is composed of, business men. Its purpose may be briefly stated as the strengthening of the commercial links between Canada and Great Britain. At the head of the mission is Mr. Lloyd Harris, who rendered great service during the war on its business side, and who has strong views on the necessity of carrying into peace the vital lessons learned by all parts of the Empire in the stress of conflict. Mr. Harris has been empowered to form his own staff, and will invite to assist him as voluntary members such business Canadians as he needs. Mr. W. C. Noxon is the first of these voluntary members, while Mr. R. J. Younge acts as secretary. The mission, which arrived in London during the early days of December, has only recently secured a permanent home in British Columbia House, 1 Regent Street, close to Pall Mall.

At first sight the prospect of persuading leaders of industry to come from Canada and place their experience at the service of the mission without fee or reward may not seem bright. At the moment the difficulty—or what there is of difficulty—is increased by the natural anxiety of business men, who did much voluntary work in Canada while war was waging, to devote a little attention to their own private concerns. Yet Mr. Harris finds no reason to anticipate any lack of readiness to respond to his call. He believes that Canadians have learned the privilege of imperial service in these years of stress, and will seize the opportunity that lies open to their capacity and wisdom.

The organization of the mission is similar to that which was set on foot between Washington and Ottawa for war aims. Mr. Harris represented the Canadian Government in a business capacity at Washington, and a business committee at Ottawa kept in close touch with his own. The arrangement proved so satisfactory that it became the model of the mission in London, which is linked in Canada with the Canadian Trade Commission, consisting of Sir Charles Gordon (chairman), Mr. C. B. McNaught, and Mr. H. B. Thompson, business men who were ardent war workers.

A Clearing House for Information

With his company of specialists in the various branches of industry and commerce, drawn whencesoever he can secure them, either from Canadians in Canada or Canadians in England, Mr. Harris hopes to make the suite of offices in Regent Street a clearing-house for all information relating to Canadian commercial enterprise. Canadian manufacturers and companies have been invited to send representatives to London with full information as to production and prices, and with samples of manufactured products. These men will be given information which will enable them to get into touch with the Governments of different European countries, or with individuals, as their desire may be. Particulars of the requirements of Great Britain and Europe will be at their disposal. In the same way British manufacturers may claim the help of the mission, and receive knowledge of Canadian needs. Every possible assistance and advice is promised to all concerned. It must not be supposed, however, that the mission is a kind of elaborate commercial traveller. Such is by no means the principle of its existence. It is rather an attempt to bring two portions of the Empire into closer realization of their material wealth and mutual commercial benefit. Nor does it end there, for nothing would please better those who have conceived this movement in



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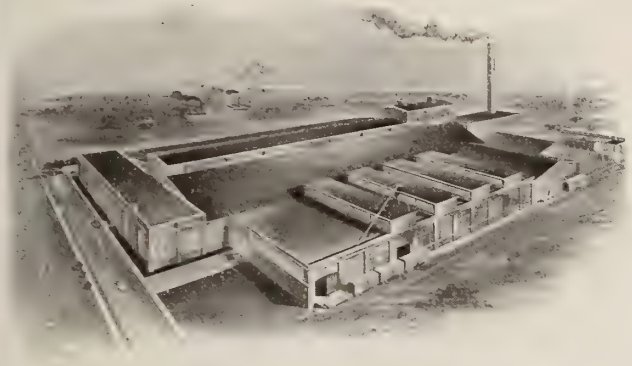
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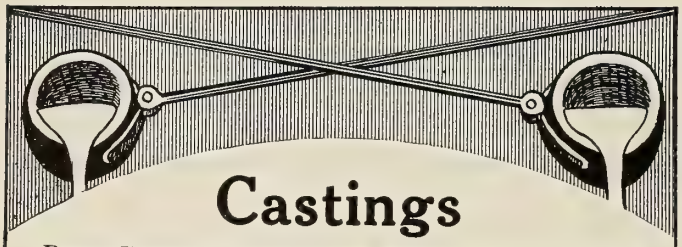
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Canada than to find it imitated by other Dominions and Colonies, so that, with wider assurance of the immense riches that lie within them, waiting for comprehensive development, might come a tightening of the common bond of substantial self-interest.

Canadian Help in the War

Canada, dealing for the time being with her own relation to Great Britain, points to her share in the war. No less than seventy per cent. of her steel production was placed at the disposal of the Munitions Department; a quarter of a million of her people went to make munitions, and they turned out shells at the rate of hundreds of thousands a week. Moreover, it will probably be established, when the cost is finally reckoned, that Canada produced munitions of several kinds more cheaply than Great Britain. This, at any rate, is the claim which she tentatively advances. She is contented, too, at having been able to place her experience and facilities at the service of the United States when America came into the war. From the beginning Canadians engaged in the manufacture of every class of goods required in the prosecution of the fight—steel, leather and so forth—gave up their commercial connections in order to answer the national call. The urgency of the crisis put a period to a large volume of private trade.

The general message of the mission is that Canada, having demonstrated in the critical days her industrial and commercial qualities as a part of the Empire, now seeks a fair field and no favor in the time that is coming. She has already made progress, both in industry and in agriculture, and expects with every reason great future developments. The market she offers is among the best in the world; and she wants markets herself, though her trade with the United States has reached very large figures. It will be to the benefit of herself and England if the flow of commerce between them is stimulated by increased knowledge of each other's requirements. By sending this mission to London, Canada shows her willingness to learn of England. On the other hand, England has something to learn of Canada; and the mission, if she be ready to take advantage of it, will serve England's turn. The fair field and no favor, already quoted, is of the essence of the bargain. Canada lays stress on it.

With reference to the matter of Canadian credits to be available for the purchase of commodities in Canada, required for the rebuilding of France, it is stated officially that after the signing of the armistice, negotiations were opened by the Minister of Finance with representatives of the French Government. It is expected that the representatives of the Canadian Trade Mission to Europe will be able to complete arrangements at an early date.

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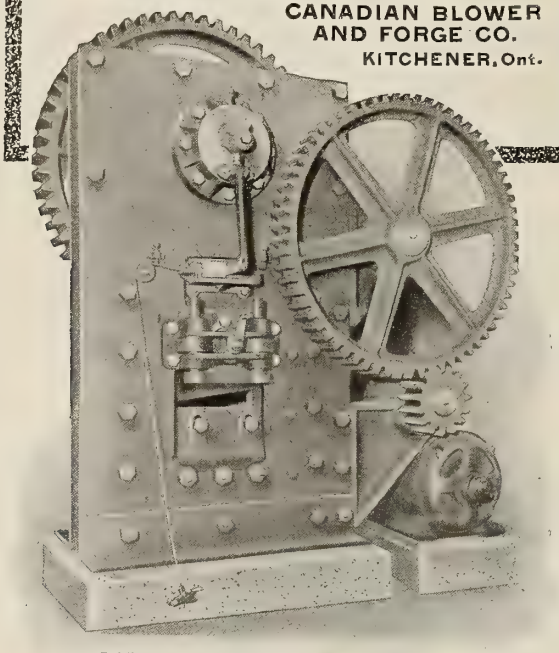
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CANADA'S IRON ORE RESOURCES

In 1917 the total production of iron ore in Canada was only equal to 9.7 per cent. of the total ore smelted in Canada. The ratio of Canadian production to total ore charged has been steadily declining with the growth of the Canadian iron industry. This is not due to lack of iron ore in Canada, but because native ores need preliminary treatment to make them suitable.

(From the "Canadian Official Record.")

A full account of the known iron ore resources of Canada, supplemented by a description of the Wabana iron mines in Newfoundland, is given in the report, entitled "Iron Ore Occurrences in Canada," compiled by E. Lindeman, M.E., and L. L. Bolton, M.A., B.Sc., with an introduction by A. H. A. Robinson, B.A. Sc., and issued in two volumes by the Mines Branch, Department of Mines. The report is timely, having regard to a deputation which recently visited Ottawa asking for a bounty on the mining of iron ores.

As early as 1667 iron ore was discovered in Canada, and in 1733 the Canadian iron industry was born in the shape of one forge producing iron. In 1737 the industry was represented by a group of forges at Three Rivers, Quebec, which "remained in active operation almost continuously until 1882, being at that time the oldest active iron producers in America."

Rapid Growth Since 1896

The growth of the industry was very slow until 1896, when it began to grow rapidly and assume its modern form. In its infant years "sufficient ore was available locally to meet all the demands at the furnaces." Since then the production of native iron ores has not kept pace with the consumption of Canadian blast furnaces. It has fallen so far behind that in 1917 the total production of iron ore in Canada was only equal to 9.7 per cent. of the total ore smelted in Canada.

The ore charged to Canadian blast furnaces has increased in quantity from 142,860 tons in 1896 to 2,176,296 tons in 1917, of which 92,065 tons were of domestic origin and 2,084,231 tons were imported. The imported ore included 874,134 tons from Newfoundland, and 1,210,097 tone of "Lake" ore. The ratio of Canadian production to total ore charged has been steadily declining with the growth of the Canadian iron industry.

This is not due to lack of iron ore in Canada. It is because the native ores need preliminary treatment to make them suitable for economic smelting, and on this account are unable to compete economically with imported ores.

"Practically all the imported ores," states the report, "come either from Waban, Newfoundland, or from the Lake Superior iron ranges in the United States. It might be noted, however, that the word 'imported' has not the same significance as applied in the two cases. The Wabana ore, on which the Nova Scotian iron and steel industry is based, comes from a sister British dominion, and is owned and mined by Canadian companies for use in their own furnaces; on the other hand, the Lake Superior ores are owned and mined by United States interests, and are bought in the open market by Ontario smelters."

Gets Iron from United States

The Steel Company of Canada has recently secured control of iron ore resources in the United States lake region, and will mine its own ores therefrom.

The report gives a summary review of the iron ore situation in the various provinces. In reference to the situation in British Columbia the report says that up to the present the production



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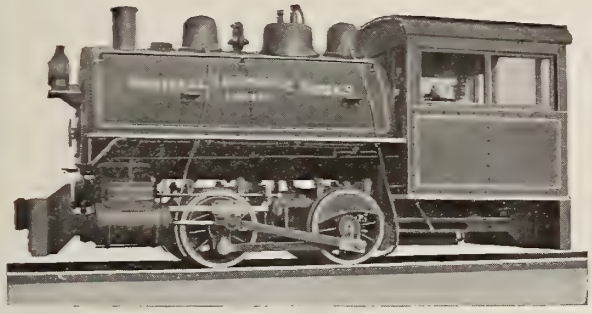
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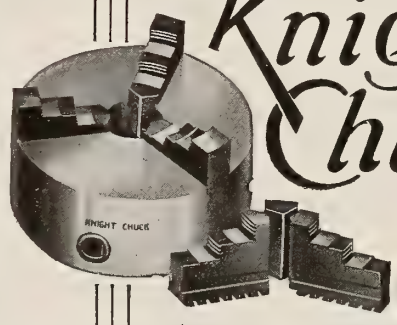
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of iron ore there has been "an almost negligible quantity," due, not so much to the lack of ore as to the lack of a market for the ore.

"The different varieties of ore found in British Columbia include magnetites, hematites, limonite or bog ores, and clay ironstones," the report states.

"The most important of the known ore bodies are a series of magnetite deposits which occur on the islands along the coast. The iron content is variable, ranging from 45 to 65 per cent. Phosphorus is often below the Bessemer limit; on the other hand, sulphur is usually so high that the ore would require preliminary roasting to render it suitable for economic smelting. . . . The coast magnetites are capable of producing a good merchantable pig-iron. They can be easily and cheaply mined. They are located close to tide-water. On the British Columbia coast, ore, coke, and limestone suitable for flux are all obtainable within easy reach of one another. . . . . It is possible to say that in the aggregate, in the known magnetite deposits of the coast district, there is a sufficiently large tonnage of ore to support a small local iron industry for many years when conditions justify its establishment. There is little doubt also that active exploration would disclose many bodies of ore at present unknown.

The comment of the report on the hematites and other iron ores in British Columbia indicates that these bodies, so far as known, are not of sufficient size to be of commercial importance.

Alberta, Saskatchewan and Manitoba

"Up to the present time no iron ore deposits of sufficient size and quality to make them of commercial importance have been found in the Middle West provinces," says the report. "There are, however, very large areas unprospected in all three, in which iron ores may be discovered in the future."

The Ontario Province

The report gives a table showing that the total production of iron ore in Ontario from 1869 to 1916 amounted to 4,349,144 tons, the largest total production of any of the Canadian provinces. The table shows that the percentage of Ontario ore used in Ontario blast furnaces is on the decline.

"Previous to 1889 all the ore mined in Ontario," the report says, "was exported to the United States, with the exception of such small quantities as were used in the earlier attempts at iron smelting. From 1889 to 1895, both years inclusive, production ceased entirely. About 1896 a system of bounties inaugurated by Federal and Provincial Governments to encourage the manufacture of iron and steel from native ores stimulated the industry. Blast furnaces were erected at various points in the province. Strenuous efforts were made to use Ontario ores as far as possible, and thus obtain the liberal bounties offered. Prospecting for iron ores became general.

"In Eastern Ontario old mines were reopened, and for a time ore was shipped in small quantities. The quality of most of it was poor. As a result, these mines have again lapsed into idleness.

"In North-western Ontario, the discovery, in 1899, of the Helen mine, a deposit of brown hematite, led to feverish activity in the search for iron ore. The net results of these efforts have been disappointing. The only large body of ore of high grade and good quality yet discovered in Ontario is that at the Helen mine.

"Since 1899, owing principally to the output of the Helen mine, the iron ore production has averaged in the neighborhood of 220,000 tons per annum, and reached a maximum in 1913, when 394,054 tons were produced. This, however, is a long way short of the amount of ore used annually in the production of pig iron, and the proportion of native ore, as compared with foreign ore, used in Ontario blast furnaces, is disappointingly small.

"With the rapidly approaching exhaustion of the hematite ore at the Helen mine, the maintenance of the present rate of

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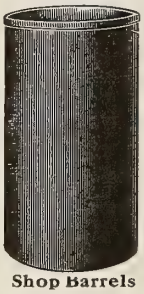
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iron ore production will depend on the possibility of profitably utilizing the known bodies of inferior ores, or the discovery of new bodies of high grade ores.

"All the usual varieties of ore are to be found in Ontario, including hematite (brown, red and specular), magnetite, siderite, and bog ore. In the past by far the most productive class has been hematite, followed by magnetite. At the present time the bulk of the output is roasted siderite.

In Quebec Province

"Iron ore was first mined and smelted in Quebec, in the eighteenth century, and from that time until 1884 the industry was carried on almost continuously at Three Rivers. Other furnaces using local ore were operated at Radnor Forges and Drummondville, the last to shut down being the Drummondville furnace, in 1911. The ores used were bog ores, with charcoal for fuel. The output of the furnaces was small, and the industry derived its chief importance from the superior quality of the pig iron made.

"The output of iron ore, never very large, has latterly occupied a very subordinate place in the mineral production of Quebec.

"Types of ore found include—magnetite (titaniferous and non-titaniferous), ilmenites, bog ore and hematite.

In Nova Scotia

"Nova Scotia, next to Ontario, has to its credit the largest aggregate output of iron ore of any province in the Dominion. . . Latterly, with the exhaustion of the workable deposits of better-grade ore, production has declined until now it has reached the vanishing point. The extensive development of the Wabana iron ore field in Newfoundland, and the ease and cheapness with which Nova Scotia furnaces can secure a supply of suitable ore from that source, have operated to decrease interest in the development of local supplies.

In New Brunswick

"New Brunswick, like all the other provinces in Eastern Canada, except Prince Edward Island, had in early days its small local iron industry, based on local ores.

"As a producer of iron ores, however, the province has never been prolific. . . . The only known deposits that have any economic interest are known as the Bathurst mines, about twenty-five milts south-west of the town of Bathurst. In 1913 operations at these mines ceased. An estimate of the ore reserves is placed at 18,600,000 tons. Concentration was adopted in the last year of operation. . . It is thought, however, that ore of merchantable grade can be produced by a system of selective mining without concentration.

In Newfoundland

"On Bell Island, in Conception Bay, Newfoundland, and in submarine areas adjacent thereto, are situated iron ore beds the workings on which are known as the Wabana Mines. The owners are Dominion Steel Corporation, Limited, Sidney, Cape Breton, N.S.; Nova Scotia Steel and Coal Company, Limited, New Glasgow, N.S.

"The ore is composed of two principal iron-bearing minerals, hematite and chamosite, while a third, siderite, becomes locally abundant.

"The total ore shipments from Wabana mines from 1909 to 1915, inclusive, amounted to 7,140,046 gross tons. In 1916 1,012,060 short tons were shipped, and in 1917 883,346 tons, by the two Canadian companies operating there. From 1910 to 1915, inclusive, the amount of Wabana ore shipped to blast furnaces in Nova Scotia was 4,806,277 gross tons. This amount represents almost the entire consumption of Nova Scotia furnaces for the period mentioned.

"The Wabana ore beds are of a higher grade in iron than most other sedimentary ores; the total tonnage present makes up one of the very largest and by far the most compact ore reserves in the world."

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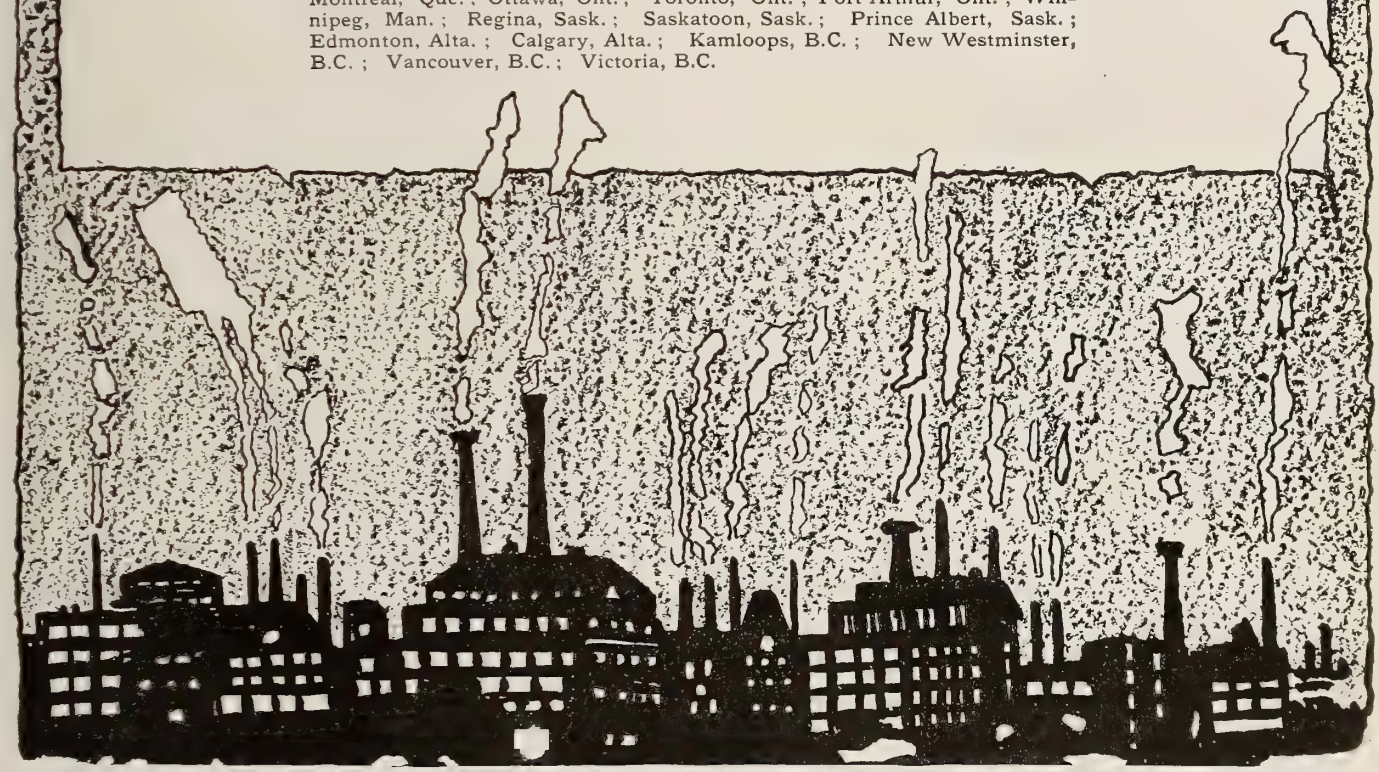
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Reconstruction

is the word on every lip to-day. The problems of the re-adjustment period require the same whole-hearted co-operation of every element in the community which has made victory possible.

Manufacturers and other employers of labour can greatly assist in bringing labour conditions back to normal by obtaining their help through the

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During the past two years the employment bureaus have assisted materially in providing labour for Ontario's farms and munition plants. The bureaus are now extended in number and staff and are prepared to help you in your post-war labour problems.

We are working in closest co-operation with the Dominion Employment Service and the Department of Soldiers' Civil Re-establishment.

We should be glad to send a special representative to talk the matter over with you. Drop a line to the Provincial Employment Clearing House, 45 King Street West, Toronto, or telephone Main 3501.

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DEPARTMENT OF PUBLIC WORKS

Our Motto—"The Right Man in the Right Job."

The Bordeaux Fair

Editor, INDUSTRIAL CANADA:

As official representative in Canada for the Executive Committee of the Bordeaux Fair I beg to call your attention to the business opportunities thus offered.

The tremendous demand caused in devastated Europe for all lines of manufacturers in the coming material and industrial reconstruction period will be such as to warrant any effort on our part to secure some of the orders bound to be placed in Canada.

If you consider that it has taken four years for the most scientific means of destruction to completely wipe off the face of the earth enough towns, villages and hamlets as would cover the actual constructed parts of Quebec and Ontario, you can easily conceive what the requirement of the reconstruction will be both in time and material. It will take all the world can produce in the next two or three years to achieve the task.

The idea of the Fair is to assemble in Bordeaux, manufacturers or their competent and authorized agents from all parts of the world; to exhibit samples of their products, give all the information regarding them; take orders and establish business connections.

The Fair thus offers the opportunity of an inexpensive and accurate way of advertising Canadian goods where they will be in most demand in Europe. In case the business possibilities thus offered strike you favorably I beg to offer the following details *re* the operation of the Fair. It is scheduled to start on the 31st of May next, and will last till the 15th of June.

Space available is in the form of "Comptoirs" or "Booths," measuring 4x4x3.25 metres, stands measuring 3x4x3.25 metres and half stands measuring 3x2x3.25 metres. The prices of location are respectively 600, 500 and 300 francs. The Comptoirs or Booths are opened on the main park of the town, whilst the stands and half stands are opened on covered alleys.

Manufacturers must be represented by agents authorized to take orders during the Fair. I shall be greatly obliged to you if you bring this opportunity to the attention of your readers.

Montreal, January 29, 1919. EMILE LACAS.

Sources of Potash

The trade in potash, says the *Times Trade Supplement*, which is one of world-wide importance, was at the outbreak of the war, almost entirely in German hands and was considered to be one of the powerful economic levers by means of which Germany might secure from enemy countries the necessary supply of raw materials for her various industries. During the last few years, however, it has been shown that potash can be obtained in quantity from other natural products. In a paper by Mr. E. A. Ashcroft read before the Institute of Mining, London, it was stated that it was possible to manufacture from potash feldspar fused in closed receptacles with an equal weight of common salt at a temperature not exceeding 1,000° C. a product consisting of finely-divided insoluble sodium feldspar and a mixture of quite neutral and freely soluble sodium and potassium chlorides. The author maintains that, under proper conditions, this simple process is capable of industrial application and that it might be applied to the vast supplies of alunite found in South Australia where it is estimated that at Bullahdelah in New South Wales at least 200 million tons of this material are in sight in cliff form in the outcrop. It is stated that by simply calcining the alunite large quantities of fertilizer containing 16 per cent. potassium sulfate could be prepared on the spot.

Buyers' Guide to Canadian Manufactures

List of Articles which will Enable the Purchaser to Know the Manufacturers of Made-in-Canada Goods. For Rates of Insertion in this Department write to the Advertising Manager of INDUSTRIAL CANADA, C.M.A., Toronto, Ont.

ABATTOIR MACHINERY and SPPPLIES
*The John Whitfield Company, Toronto, Ont.
ABRASIVES
*Coralox, Limited, Hamilton, Ont.
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
*Dominion Abrasive Wheel Co., New Toronto, Ont.
ACCOUNT BOOKS
*The Brown Bros., Ltd., Toronto.
ACETYLENE GAS
*The Prest-O-Lite Company.
ACETYLENE GAS BURNERS
Economic Acetylene Burner Co., Toronto.
*The Prest-O-Lite Company.
ACIDS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal.
ADVERTISING NOVELTIES
Lawson & Jones, Ltd., London, Ont.
AERATED BEVERAGES
Charles Gurd & Co., Ltd., Montreal, Que.
J. J. McLaughlin, Ltd., Toronto.
AIR COMPRESSORS
*Canadian Ingersoll-Rand Co., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ALCOHOL
*Canadian Industrial Alcohol Company, Limited, Montreal, Que.
*Hiram Walker & Sons, Limited, Walkerville, Ont.
ALUMINUM
*Northern Aluminum Co., Ltd., 1805 Traders Bank, Toronto.
ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
AMMONIA
Canadian Ammonia Co., Ltd., Toronto.
ANGLE BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
ARSENIC
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ATTACHMENT PLUGS
*Crouse-Hinds Co., Ltd., Toronto.
AUTOGRAPHIC REGISTERS
*Autographic Register Co., Ltd., Montreal.
AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.
AUTOMATIC SCREW MACHINE PRODUCTS
*United Brass & Lead, Ltd., Toronto
AUTOMOBILE ACCESSORIES
*McKinnon Industries Limited, St. Catharines, Ont.
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton, Ont.
AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
*United Brass & Lead, Ltd., Toronto
AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton, Ont.
AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
BABBITT METAL
Alenzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.
BAGS
*Scythes & Co., Ltd., Toronto.
BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.
BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.
BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.
BAND RESAWS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.
BANK AND OFFICE RAILINGS AND CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
BARS, iron
London Rolling Mill Co., Limited, London, Ont.
BARS, steel
London Rolling Mill Co., Limited, London, Ont.
BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.
BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.
BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
BATTERIES, Flashlight
The Canadian National Carbon Co., Ltd., Toronto.
BATTERIES, Storage
The Canadian National Carbon Co., Ltd., Toronto.
BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BEARINGS, pillow block and upright
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.
BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.
BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.
BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.
BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.
BENT GOODS
The Crown Lumber Co., Woodstock, Ont.
BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.
BISCUITS
The Montreal Biscuit Co., Montreal, Que.
BLACK SHEETS
*A. C. Leslie & Co., Montreal.
BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton, Ont.
BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.
BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.
BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor,
BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited, Montreal.
BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.
BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.
BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.
BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
*Lauzon Engineering Limited, Levis, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph
*The Waterous Engine Works Co., Ltd., Brantford.
BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BOILER STANDS
Anthes Foundry Ltd., Toronto.
BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The National Acme Mfg Co., Montreal., Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.
*United Brass & Lead, Ltd., Toronto
BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.
The Mortimer Co., Ltd., Ottawa.
BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.
BOOKLETS
R. G. McLean, Toronto.
BOOKS, blank
*The Brown Bros., Ltd., Toronto.
BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.
BOTTLES, Hot Water, Brass, Nickel Plated.
*Wentworth Mfg. Co., Hamilton.
BOXES
*Crouse-Hinds Co., Ltd., Toronto.
BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.
BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.
BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto
BOXBOARDS, for making paper boxes
*Canada Boxboard Co., Limited, Montreal, Que.
BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited, Montreal.

*For Display Advertisement see Index, Page 41

BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRAKE SHOE BACKS
*The John Whitfield Company, Toronto, Ont.
BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS GOODS
*Penberthy Injector Co., Ltd., Windsor.
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead Ltd., Toronto.
*Wentworth Mfg. Co., Hamilton.
BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton. Ont.
BRASS RODS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRASS SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton. Ont.
BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton. Ont.
*Dominion Copper Products Company, Limited, Montreal.
BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton. Ont.
BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*H. Mueller Mfg. Co., Ltd., Sarnia.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*United Brass & Lead, Ltd., Toronto
BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.
BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.
BRIDGES, Railway and Highway
*Hamilton Bridge Works Co., Ltd., Wakerville. Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Dominion Bridge Co., Montreal.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRONZE EHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRONZE TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.
BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.
BUCKET TANKS
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
BUCKLES, harness and trunk
*McKinnon Industries Limited, St. Catharines, Ont.
BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St. Johns, Que.
BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Barrett Co., Ltd., Toronto and Montreal.
BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal. Que.
CABLE ACCESSORIES
*Crouse-Hinds Co., Ltd., Toronto.
CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.
CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.
CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton. Ont.
CALENDARS, ADVERTISING NOVELTIES, etc.
Lawson & Jones, Limited, London.
CAMERAS
Canadian Kodak Co., Limited, Toronto.
CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford. Ont.
CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.
CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.
CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.
CANVAS
*Scythes & Co., Ltd., Toronto.
CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.
CAPS FOR HUBS
*McKinnon Industries Limited, St. Catharines, Ont.
CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.
CARBONS, Electric
Canadian National Carbon Co., Ltd., Toronto.
CARBONS (headlight)
*Crouse-Hinds Co., Ltd., Toronto.
CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.
CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited,
CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.
CARRIAGE CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.
CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.
CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier
CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.
CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.
CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
CARTONS, lithographed
Harris Lithographing Company, Limited, Toronto.
CASTINGS
*Tallman Brass & Metal Co., Hamilton. Ont.
CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
*Tallman Brass & Metal Co., Hamilton, Ont.
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*Lauzon Engineering Limited, Levis, Que.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, grey iron
*Canadian Rumely Co., Limited, Toronto, Ont.
*Crouse-Hinds Co., Ltd., Toronto.
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont
*Lauzon Engineering, Limited, Levis, Que.
CASTINGS, malleable iron
*Crouse-Hinds Co., Ltd., Toronto.
*Galt Malleable Iron Co., Ltd., Galt, Ont.
CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.
*Wm. Kennedy & Sons, Ltd., Owen Sound.
CATALOGUE MAKERS
Grip, Ltd., Toronto.
CATALOGUE COVERS, by new lithographing process
Harris Lithographing Company, Limited, Toronto.
CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor,
CAUSTICS
*Dominion Oil Co., Ltd., Hamilton.
CELLBOARD
Adams Cellboard Co., Toronto,
CEMENT GUNS
Steel and Radiation, Ltd., Toronto.
CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.
CENTRIFUGAL PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.
CHAINS, sling
*The John Whitfield Company, Toronto, Ont.
CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.
CHAIRS FOR AUTOMOBILES, camp, boat
*McKinnon Industries Limited, St. Catharines, Ont.
CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.
CHECKS, swing checks, etc
*Mueller Mfg. Co., Ltd., Sarnia.
CHEMICALS
*Dominion Oil Co., Ltd., Hamilton.
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.
CHEMISTS, INDUSTRIAL
*Milton Hersey Co., Montreal.
CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.
CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.
CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
CLAM SHELL BUCKETS
*M. Beatty & Sons. Ltd., Welland.
CLOCKS, TIME
*International Business Machines, Limited, Toronto.
CLOCKS, WATCHMEN'S
*The Bennett & Wright Co., Ltd., Toronto, Ont.
CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.
CLOTHING
John W. Peck & Co., Ltd., Montreal Que.
CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.
CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia Ont.
CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.
CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.
CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.
COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

For Display Advertisement see Index, Page 41

COBALT OXIDE
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.

COBALT METAL
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.

COFFEE
S. H. Ewing & Sons, Montreal

COLD DRAWN SHAPES, flats, squares and hexagons
***The Canadian Drawn Steel Co Ltd., Hamilton, Ont.**
***Union Drawn Steel Co., Limited Hamilton, Ont.**

COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto

COLLAR BUTTONS
The Arlington Co. of Canada, Ltd. Toronto.

COLLARS
The Standard Shirt Co., Limited Montreal, Que.

COLLARS, coated linen
Parsons & Parsons Canadian Co. Hamilton, Ont.

COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

COLORS
Brandram-Henderson, Limited Montreal, Que.
A. Ramsay & Son Co., Montreal

COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd. Toronto.

COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.

CONCRETE COATINGS, PAINTS, ETC.
***Beveridge Paper Co., Ltd., Montreal.**
***Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.**
The Imperial Varnish & Color Co. Limited, Toronto.

CONDUITS FOR INTERIOR WIRING
***Conduits Company Ltd. Toronto.**

CONDULET BOX FITTINGS
***Crouse-Hinds Co., Ltd., Toronto.**

CONDULETS (Marine)
***Crouse-Hinds Co., Ltd., Toronto.**

CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal.

CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.

CONTRACTOR'S PLANT
***M. Beatty & Sons, Ltd., Welland.**
***Canadian Allis-Chalmers, Limited.** Toronto.

CONVEYORS
***Canadian Link-Belt Co., Toronto.**
***Canadian Mathews Gravity Carrier** Co., Toronto.
***Dodge Mfg. Co., Ltd., Toronto.**

COPPER
***Eugene F. Phillips, Electrical Works, Limited, Montreal.**
***Booth-Coulter Copper & Brass Co., Limited. Toronto.**
*Consolidated Mining & Smelting Co. of Canada, Limited, Toronto.

COPPER, SHEETS, PLATES, BARS, RODS
***Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.**

COPPER SHEETS AND PLATES
***Booth-Coulter Copper & Brass Co., Limited, Toronto.**
***Tallman Brass & Metal Co., Hamilton, Ont.**
*Dominion Copper Products Company, Limited, Montreal.

COPPERSMITHS
***Booth-Coulter Copper & Brass Co., Limited. Toronto.**

COPPER TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.

COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
***Booth-Coulter Copper & Brass Co., Limited, Toronto.**

COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
***Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.**

CORKS
S. H. Ewing & Sons, Montreal, Que.

CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.

CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
Corrugated Paper Box Co., Ltd., Toronto.
***Hinde & Dauch Paper Co., Toronto.**
***The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.**

CORUNDUM, artificial
*Coralox, Limited, Hamilton, Ont.

CORSETS
Dominion Corset Co., Quebec, Que.

COTTONS
***Dominion Textile Co., Limited, Montreal, Que.**
***Montreal Cottons, Ltd., Valleyfield, P.Q.**

COTTONADES
Hamilton Cotton Co., Hamilton, Ont.

COUPLERS
***Canadian Steel Foundries, Ltd., Welland, Ont.**

COUPLINGS
***Canadian Bond Hanger & Coupling Co., Alexandria, Ont.**
***Dodge Mfg. Co., Ltd., Toronto.**

CRANES
***Northern Crane Works, Walkerville, Ont.**
*The Herbert Morris Crane and Hoist Co., Ltd., Niagara Falls.

CRANKSHAFTS
Canada Forge Co., Ltd., Welland
*The John Whitfield Company, Toronto, Ont.

CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.

CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.

CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

CREOSOTED MATERIALS
***The Barrett Co., Ltd., Toronto and** Montreal.

CRUCIBLES, PLUMBAGO
Dominion Crucible Co., Limited, Montreal.

CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.

CRUSHING ROLLS
***Jenckes Machine Co., Sherbrooke, Que.**

CUPOLAS
***Sheldons, Ltd., Galt, Ont.**
***Northern Crane Works, Limited, Walkerville, Ont.**

CUPS, presentation
Standard Silver Co., Toronto.

CUPS, grease and oil
***The Canadian Winkley Co., Ltd., Windsor, Ont.**

CURLED HAIR
***Delany and Pettit, Ltd., Toronto.**

CURTAINS, chenille
Hamilton Cotton Co., Hamilton

CUTLERY
Standard Silver Co., Toronto.

CUTTERS, (Machine)
***Pratt & Whitney Co., Dundas.**

DASHES, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.

DECALCOMANIA TRANSFERS
Canada Decalcomania Co., Limited, Toronto.

DECK PLUGS (electric marine)
*Crouse-Hinds Co., Ltd., Toronto.

DENIMS
Hamilton Cotton Co., Hamilton.

DERAILS
***Canadian Hart Wheels, Limited, Hamilton, Ont.**

DESIGNERS
Ontario Engraving Co., Hamilton

DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.

DESKS
***Office Specialty Mfg. Co., Ltd.,** Newmarket, Ont.

DESSICATED VEGETABLES
Grahams Limited, Belleville.

DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.

DIES
***Butterfield & Co., Rock Island, P.Q.**
***Pratt & Whitney Co., Dundas.**
*John Whitfield Co., Toronto

DISINFECTING APPARATUS
Spramotor Co., London, Ont

DOOR HANGERS
***Richards Wilcox Canadian Co., Ltd., London, Ont.**

BOUBLETREES
*McKinnon Industries Limited, St. Catharines, Ont.

DREDGES
***M. Beatty & Sons, Limited, Welland, Ont.**

DRESSING, belt,
Sadler & Haworth, Montreal, Que.

DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.

DRIFT BOLT DRIVERS
***Canadian Ingersoll-Rand Co., Ltd.,** Montreal, Que.

DRILL PRESSES
***Canada Machinery Corporation, Limited, Galt, Ont.**

DRILL SHARPENERS
***Canadian Ingersoll-Rand Co., Ltd.,** Montreal, Que.

DRILLS
***John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.**
***Pratt & Whitney Co., Dundas.**

DRILLS, core
***Canadian Ingersoll-Rand Co., Ltd.,** Montreal, Que.

DRILLS, pneumatic
***Canadian Ingersoll-Rand Co., Ltd.,** Montreal, Que.

DRILLS, rock
***Canadian Ingersoll Rand Co., Montreal, Que.**

DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.

DROP FORGINGS
***Canadian Billings & Spencer, Ltd.,** Welland, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.

DROP HAMMERS
***Canada Machinery Corporation, Limited, Galt, Ont.**

DRUMS, steel, and containers
***Smart-Turner Machine Co., Ltd.,** Hamilton, Ont.

DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.

DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.

DYNAMITE
Canadian Explosives, Limited, Montreal, Que.

DYNAMOS
Consolidated Electric Co., Limited, Toronto.
***Jones & Moore Electric Co., Ltd.,** Toronto.
***The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.**

DYNAMOS, plating
***Jones & Moore Electric Co., Ltd.,** Toronto.

EIDERDOWN
Galt Knitting Co., Ltd., Galt.

ELECTRIC APPLIANCES
***Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.**
***Canadian Westinghouse Co., Ltd.,** Hamilton, Ont.

ELECTRIC APPLIANCES, fibre, all purposes
***Beveridge Paper Co., Limited,** Montreal.

ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.

ELECTRIC COOKING APPLIANCES
***Canadian General Electric Company, Ltd., Toronto.**

ELECTRIC LAMPS
Packard Electric Co., Ltd., Toronto.

ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.

ELECTRIC BRANDING TOOLS
***The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.**

ELECTRIC RAILWAY EQUIPMENT
***Crouse-Hinds Co., Ltd., Toronto.**

ELECTRODES, Carbon
Canadian National Carbon Co., Ltd., Toronto.

ELECTROPLATING
***United Brass & Lead, Ltd., Toronto**
Central Press Agency, Toronto.

ELECTRICAL SUPPLIES
***Canadian General Electric Company, Ltd., Toronto.**
***Canadian Westinghouse Co., Ltd.,** Hamilton, Ont.
***Jones & Moore Electric Co., Ltd.,** Toronto.
***Northern Electric Co., Limited,** Montreal, Que.

ELECTRIC SOLDERING IRON
***The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.**

ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.

ELEVATING MACHINERY
***Canadian Link-Belt Co., Toronto.**
***Canadian Mathews Gravity Carrier** Co., Toronto.

ELEVATORS
***Jenckes Machine Co., Sherbrooke,**
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
Turnbull Elevator Manufacturing Company, Toronto.
***The Waterous Engine Works Co., Ltd., Brantford, Ont.**
***Northern Crane Works, Limited,** Walkerville, Ont.

ELEVATORS FOR ALL PURPOSES
***The Waterous Engine Works Co., Limited, Brantford, Ont.**

ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
***The A. B. Ormsby Co., Limited,** Toronto.

ELEVATOR GUARDS
***The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.**
***Canada Wire and Iron Works,** Hamilton, Ont.

EMERY DRESSERS and STANDS
***Canadian Hart Wheels, Limited.** Hamilton, Ont.

EMERY GRINDERS
***Canadian Hart Wheels, Limited.** Hamilton, Ont.

EMERY WHEELS
***Canadian Hart Wheels, Limited.** Hamilton, Ont.

EMERY WHEEL GUARDS
***Canadian Hart Wheels, Limited.** Hamilton, Ont.

ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.

ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.

ENGINES
***E. Leonard & Sons, London, Ont.**
***Goldie & McCulloch Co., Limited,** Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Lauzon Engineering Limited, Levis, Que.
***Polson Iron Works, Limited, Toronto.**
***Sheldons, Ltd., Galt, Ont.**
***The Waterous Engine Works Co., Limited, Brantford, Ont.**

ENGINES, gas and gasoline
***Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.**
***Goold-Shapley-Muir Co., Limited, Brantford, Ont.**
***Hamilton Motor Works Ltd.,** Hamilton.
***Massey-Harris Co., Ltd., Toronto.**

ENGINES, gasoline, tractor, plowing and threshing
***Sawyer-Massey Co., Ltd., Hamilton, Ont.**

ENGINES, hoisting
***M. Beatty & Sons, Welland, Ont.**
***The Waterous Engine Works Co., Limited, Brantford, Ont.**

ENGINES, Marine, Gasoline and Kerosine
Bruce, Stewart & Co., Ltd., Charlottetown, P.E.I.

ENGINES, oil, gasoline and kerosene
*Golson Manufacturing Co., Ltd., Guelph.

ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.

ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.

ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.

ENGRAVERS, PHOTO
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton.
The Mortimer Co., Ltd., Ottawa.

ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.

ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa.

ENGRAVING
*J L. Jones Engraving Company, Toronto.

ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa Limited, Ottawa, Ont.

ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.

EVAPORATED APPLES
Grahams Limited, Belleville.

ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.

EVENERS, for 2, 3, 4, 6 and 8 horses
*McKinnon Industries Limited, St. Catharines, Ont.

EXCELSIOR
*Delany & Pettit, Ltd., Toronto.

EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.

EXPLOSIVES, high
Canadian Explosives Ltd., Montreal.

FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.

FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.

FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

FASTENERS, belt
*Sadler & Haworth, Montreal, Que.

FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited Montreal.

FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.

FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co. Hamilton, Ont.

FENCING, wire
C. H. Johnson & Sons, Limited Montreal, Que.

FENDERS, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.

FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull Que.

FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.

FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope.

FILING CABINETS
*Office Specialty Co., Newmarket.

FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.

FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.

FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.

FIRE BRICK
Dominion Fire Brick and Clay Products, Ltd., Moose Jaw

FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.

FIRE BRICK AND CLAY
The Dominion Fire Brick and Clay Products, Ltd., Moose Jaw, Sask.

FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.

FIRECLAY
*Jas. W. Foley & Co., St. John, N.B.

FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.

FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.

FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.

FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.

FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited, Brantford, Ont.

FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.

FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Bennett & Wright Co., Ltd., Toronto, Ont.

FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.

FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.

FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.

FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.

FITTINGS, steam
Warden King, Ltd., Montreal, Que.

FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.

FLAGS
*Scythes & Co., Limited, Toronto.

FLANGES, for wheels
*McKinnon Industries Limited, St. Catharines, Ont.

FLOODLIGHTS (electric)
*Crouse-Hinds Co., Ltd., Toronto.

FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.

FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.

FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.

FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.

FORGINGS
Canada Forge Co., Ltd., Welland.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
*The John Whitfield Company, Toronto, Ont.

FORGINGS, drop
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.

FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.

FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.

FOUNTAINS, drinking
*Mueller Mfg. Co., Ltd., Sarnia.

FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.

FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

FUEL
Standard Fuel Co., Toronto.

FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.

FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.

FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.

FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.

FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.

FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.

FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.

FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont.

FUSE BOXES
*Crouse-Hinds Co., Ltd., Toronto.

FUSE PLUGS AND FUSES, refillable
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.

FUSES
*Economy Fuse and Mfg. Co., Montreal.

GALVANIZED IRON
*A. C. Leslie & Co., Montreal.

GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
*The A. B. Ormsby Co., Limited, Toronto.

GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
*McKinnon Industries Limited, St. Catharines, Ont.

GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

GASOLINE
*The Imperial Oil Co., Limited, Toronto.

GAUGES
*Brown Engineering Corporation, Toronto.
*John Whitfield Co., Toronto.

GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
*The John Whitfield Company, Toronto, Ont.

GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.

GELATINE
Canada Gelatine Co., Ltd., Brantford.

GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.

GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.

GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.

GILDING METAL.
*Dominion Copper Products Company, Limited, Montreal.

GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.

GLASSWARE, cut
Roden Bros., Ltd., Toronto.

GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.

GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.

GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.

GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.

GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.

GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.

GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.

GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.

GREASES
*Dominion Oil Co., Ltd., Hamilton.

GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.

GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited. New Toronto.

GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.

GUARDS (Conduiet)
*Crouse-Hinds Co., Ltd., Toronto.

GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.

GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.

GUY RODS
*Crouse-Hinds Co., Ltd., Toronto.

GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.

GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

*For Display Advertisement see Index, Page 41

HACK SAW BLADES and FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W. Fearman Co., Ltd., Hamilton. Ont.
HAMES, steel and iron
*McKinnon Industries Limited, St. Catharines, Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt. Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
*Beveridge Paper Co., Ltd., Montreal.
HARNESS
Lamontagne Ltd., Montreal, Que.
HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HARNESS HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEADLIGHT (electric)
*Crouse-Hinds Co., Ltd., Toronto.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt. Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.
HEMLOCK, union and oak sole
Breithaupt Leather Co., Ltd., Kitchener, Ont.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville. Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland. Ont.
*Northern Crane Works, Limited, Walkerville. Ont.

HOOKS, for logging chains
*McKinnon Industries Limited, St. Catharines, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HUB CAPS
*McKinnon Industries Limited, St. Catharines, Ont.
HUBS, for Ford cars
*McKinnon Industries Limited, St. Catharines, Ont.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited Toronto.
ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal, Que.
INCUBATORS & BROODERS
Lee Mfg. Co., Ltd., Pembroke, Ont
INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont.
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited, Montreal.
INSULATORS
*Crouse-Hinds Co., Ltd., Toronto.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co., of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St. Johns, Que.
IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth, N.S.
IRON AND STEEL BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.
IRON PUMPS
*Medicine Hat Pump & Brass Mfg. Co., Medicine Hat, Alta.
JACKS
*Globe Engineering Co., Limited, Hamilton, Ont.
JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.

JOINTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal.
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
*The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
*The Peter Hay Knife Co., Limited, Galt, Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Company, Limited, Toronto.
LACE LEATHER
F. O. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville. Ont.
LAMP GLOBES
*Crouse-Hinds Co., Ltd., Toronto.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LATHES
*Canada Machinery Corporation, Limited, Galt, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD
*Consolidated Mining & Smelting Co. of Canada, Limited, Toronto.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.

LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
*United Brass & Lead, Ltd., Toronto
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER DASHES AND FENDERS
*McKinnon Industries Limited, St. Catharines, Ont.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock, union and oak sole
The Breithaupt Leather Co., Ltd., Kitchener, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston
King Brothers Company, Limited, Whitby, Ont.
LIGHTS (marine, side and port)
*Crouse-Hinds Co., Ltd., Toronto.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Company, Limited, Toronto.
The Mortimer Co., Ltd., Ottawa.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
*United Brass & Lead, Ltd., Toronto
LOGGING CHAIN HOOKS
*McKinnon Industries Limited, St. Catharines, Ont.
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.

*For Display Advertisement see Index, Page 41

LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
Henry Disston and Sons, Toronto
MACHINE TOOLS
*Canada Machinery Corporation Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special and repairs
*Canadian Rumely Co., Limited, Toronto, Ont.
*The John Whitfield Company, Toronto, Ont.
MACHINERY AND UTENSILS FOR BAKERS
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR CANDY
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR ICE CREAM
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited, Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland.
*Northern Crane Works, Limited, Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, punching and shearing.
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, railroad and car-shop
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton
*Canada Machinery Corporation Limited, Galt, Ont.
MACHINERY, special
Bawden Machine Co., Limited, Toronto.
*The John Whitfield Company, Toronto, Ont.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Canada Machinery Corporation, Limited, Galt, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WORK, special and repairs
*Canadian Rumely Co., Ltd., Toronto, Ont.
*John Whitfield Co., Toronto, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MALLEABLE, for carriages
*McKinnon Industries Limited, St. Catharines, Ont.
MALLEABLE IRON CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILINGS
*The Pedlar People Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The Pedlar People Limited, Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People, Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto.
MIXERS, chocolate, dough and paint
Fletcher Mfg. Co., Ltd., Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.
MORTISERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton, Georgetown, Ont.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
MOULDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto.
NAPHTHA
*The Imperial Oil Co., Limited, Toronto.
NECKYOKES
*McKinnon Industries Limited, St. Catharines, Ont.
NICKEL OXIDE
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
Coniagas Reduction Co., Limited, St. Catharines, Ont.
NICKEL METAL
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
NIPPLES, for radiators
*McKinnon Industries Limited, St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
OARLOCKS
*McKinnon Industries Limited, St. Catharines, Ont.
OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.
OFFICE DESKS
*Goderich Organ Co., Goderich,
OFFICE EQUIPMENT
*Office Specialty Co., Newmarket,
OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal,
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.
OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.
OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.
OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton.
*Imperial Oil Co., Toronto.
OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*Dominion Oil Co., Ltd., Hamilton.
*The Imperial Oil Co., Toronto.
OILS, road
*The Barrett Co., Ltd., Toronto and Montreal.
OIL HOLE COVERS
*Canadian Winkley Co., Limited, Windsor, Ont.
OIL CUPS, both screw top and hinge lid
*Canadian Winkley Co., Limited, Windsor, Ont.
OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.
ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.
ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.
OVERALLS
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.
OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.
OVERHEAD RUNWAYS
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Richards-Wilcox Canadian Co., Limited, London, Ont.
OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.
OXYGEN
*L'Air Liquide Society, Montreal.
PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.
PACKING BOXES
Barchard & Co., Limited, Toronto.
PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.
PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.
PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.
PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.
PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.
PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.
PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
PANELBOARDS
*Crouse-Hinds Co., Ltd., Toronto.
PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.
PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.
PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.

*For Display Advertisement see Index, Page 41

PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, enamelled blotting
*Provincial Paper Mills, Limited.
PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited Montreal.
PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall. Ont.
PAPERBOARDS
*Canada Boxboard Co., Limited, Montreal. Que.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Stauntons, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
Howard Smith Paper Mills, Limited, Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd. Montreal.
*Rolland Paper Co., Ltd., Montreal
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto
*Harold C. Shipman & Co., Ottawa.
PATENT LITIGATION
Ridout and Maybee, Toronto.
*Harold C. Shipman & Co., Ottawa.
PATTERN MAKERS' BRASS DOWEL PINS
*Canadian Winkley Co., Limited, Windsor, Ont.
PAY ROLL AUDITS
*International Business Machines, Limited, Toronto.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co,, Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.
PIANO KEYS
The Otto Higel Co., Ltd., Toronto.
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.
PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.
M. A. Hanna & Co., Toronto.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Authes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUGS
*Crouse-Hinds Co., Ltd., Toronto.
PLUMBAGO, CRUCIBLES and STOPPER HEADS
Dominion Crucible Co., Limited, Montreal.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont.
POWDER, blasting
Canadian Explosives, Ltd., Montreal. Que.
POWER PRESSES
Hydraulic Machinery Co., Limited. Montreal.
*William R. Perrin, Ltd., Toronto
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
*William R. Perrin, Ltd., Toronto.
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSES, veneer
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSED STEEL AND BRASS GREASE CUPS
*Canadian Winkley Co., Limited, Windsor, Ont.
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
The Mortimer Co., Ltd., Ottawa.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULLEYS, wood split.
*Bernard Industrial Co., Fortierville, P.Q.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
Riordan Sales Co., Ltd., Montreal.
PULP, Unbleached Sulphite.
Riordan Sales Co., Ltd., Montreal.
PULP, sulphate and sulphite.
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited Toronto.
*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London,, Ont.
PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford. Ont.
PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.
PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.
RADIATORS
Taylor-Forbes Co., Limited, Guelph
Warden King, Ltd., Montreal. Que.
RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.
*United Brass & Lead, Ltd., Toronto
RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.
RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.
RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.
RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.
READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.
REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.
RECEPTACLES
*Crouse-Hinds Co., Ltd., Toronto.
REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.
REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.
REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.
REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.
REINFORCEMENT BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.
RINGS, gold
Caron Bros., Montreal, Que.
RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ROLLING STEEL DOORS
*A. B. Ormsby Co., Ltd., Toronto.
ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.
ROOFING, metal
*The A. B. Ormsby Co., Limited, Toronto.
ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
ROOFINGS, plastic and liquid
*Beveridge Paper Co., Limited, Montreal.
ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.
ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

*For Display Advertisement see Index, Page 41

ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.
RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.
RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.
RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.
RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.
SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.
SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal.
SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SANDPAPER
*Delany and Pettit, Ltd., Toronto.
SASH CORD, cotton
Hamilton Cotton Co., Hamilton,
SALT
Canadian Salt Co., Ltd., Windsor,
*Dominion Salt Co., Ltd., Sarnia,
SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.
SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.
SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.
SAWS, cross-cut and band
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWS, circular mill
Shurly & Deitrich, Galt, Ont.
SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.
SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.
SAWS, rip
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited Toronto.
SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.
SCALES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton.
SCALES, counter
The Gurney Scale Co., Hamilton,
SCALES, railway track, etc.
The Gurney Scale Co., Hamilton,
SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris.
Ham & Nott Co., Ltd., Brantford.
SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
*United Brass & Lead, Ltd., Toronto
SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.
SECURITIES, engraved
American Bank Note Co., Ottawa.
SERGES
Rosamond Woollen Co., Almonte,
SHAFTING
Canada Forge Co., Ltd., Welland,
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford,
SHAPERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
SHEATHING
*The Barrett Co., Ltd., Toronto and Montreal.
SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.
SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.
*The A. B. Ormsby Co., Limited, Toronto.
SHEETS, ETC.
*Tallhan Brass & Metal Co., Hamilton, Ont.
SHEETS, galvanized
*Dominion Sheet Metal Co. Ltd., Hamilton.
*The Pedlar People Limited,
SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.
SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
SHIP BUILDERS
*Poison Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
SHIRTS
John W. Peck & Co., Ltd., Montreal, Que.
SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.
SHOE PEGWOOD
O. Chalifour, Quebec, Que.
SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.
SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.
SHOOKS
Barchard & Co., Ltd., Montreal.
SIGNAL CELLS
Canadian National Carbon Co., Ltd., Toronto.
SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.
SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.
*Deloro Smelting & Refining Co., Limited, Delcro, Ont.
SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.
SILVERWARE, sterling
Roden Bros., Limited, Toronto.
SINGLETREES
*McKinnon Industries Limited, St. Catharines, Ont.
SINKS, enamelled
Amherst Foundry Co., Limited, Amherst, N.S.
SKATES, figure
Canada Cycle and Motor Co., Ltd.,
SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.
SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.
SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.
SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.
SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
SLEIGHS
Tudhope-Anderson Co., Limited, Orillia, Ont.
SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.
SLOTTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
SMALL METAL STAMPINGS, in quantities
*Canadian Winkley Co., Limited, Windsor, Ont.
SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.
SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
SNAPS, for harness
*McKinnon Industries Limited, St. Catharines, Ont.
SOAPS
J. Barsalou & Co., Ltd., Montreal.
SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.
SOCKETS
*Crouse-Hinds Co., Ltd., Toronto.
SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto
SODA WATER FOUNTAINS AND ACCESSORIES
Fletcher Mfg. Co., Ltd., Toronto.
SOIL PIPE
Anthes Foundry, Ltd., Toronto.
SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
SOLDER, silver
Geo. H. Lees & Co., Hamilton.
SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.
SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton Ont.
SNOWSHOES
Holt, Renfrew, Ltd., Quebec, Que.
SPECIAL MACHINERY
*Globe Engineering Co., Limited, Hamilton, Ont.
SPELTER
*Consolidated Mining & Smelting Co. of Canada, Limited, Toronto.
SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth N.S.
SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd. Galt, Ont.
SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.
SPIRITS
*Hiram Walker & Sons, Limited Walkerville, Ont.
SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.
SPRAYERS
Spramotor Co., London, Ont.
SPRING COTTERS
*Richards-Wilcox Canadian Co. Limited, London, Ont.
SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRING SHACKLE BOLTS
*Canadian Winkley Co., Limited, Windsor, Ont.
SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy, Mantell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.
SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.
STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.
STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.
STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.
*Wentworth Mfg. Co., Hamilton.
STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STAMP MILLS
*Jenckes Machine Co., Sherbrooke.
STATIONERY, office
Harris Lithographing Co., Toronto.
STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland,
STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.
STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.
STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
*Burlington Steel Co., Ltd., Hamilton, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited, Hamilton.
STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.
STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.
STEEL DOORS, rolling
*The A. B. Ormsby Co., Limited, Toronto.
STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
STEEL PLATE WORK
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Toronto Iron Works, Ltd., Toronto.
STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.
STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
STEEL SHELVING
*Dennis Wire & Iron Works Co., London.
STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.
STEEL WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
STELLITE
*Deloro Smelting & Refining Co., Ltd., Deloro and Toronto.

*For Display Advertisement see Index, Page 41

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STEPS, for buggies and carriages
*McKinnon Industries Limited, St. Catharines, Ont.
STEREOTYPING
Central Press Agency, Toronto
STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
STONE
The Hagersville Contracting Co., Hagersville, Ont.
STONEWARE
*Jas. W. Foley & Co., St. John, N.B.
STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.
STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.
STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.
STOVES AND RANGES
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.
STRAWS, paper drinking
Fletcher Mfg. Co., Ltd., Toronto.
STRAWBOARD
*Canada Boxboard Co., Limited, Montreal, Que.
STREET LIGHTING FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.
STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Canadian Bridge Co., Ltd., Walkerville, Ont
STUMP EXTRACTORS
*The John Whitfield Company, Toronto, Ont.
SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.
SURFACERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
SWITCH STANDS
Canadian Ramapo Iron Works, Ltd. Niagara Falls, Ont.
TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton,
TANKS
*Toronto Iron Works, Ltd., Toronto.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.
TANKS, steel storage
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.
TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.
TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
TENTS
Turner, J. J., & Sons, Peterboro,
*Scythes & Co., Ltd., Toronto.
TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B
TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.
TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.
TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TIE PLATES, for railways
*McKinnon Industries Limited, St. Catharines, Ont.
TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TIME RECORDERS
*International Business Machines, Limited, Toronto.
TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TOOLS
*The John Whitfield Company, Toronto, Ont.
TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton.
TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton.
TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.
TRACTORS, kerosene and gasoline
*Gilson Manufacturing Co., Ltd., Guelph.
TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.
TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.
TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.
TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.
TRUCKS
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton.
*Northern Crane Works, Limited, Walkerville.
TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.
TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.
TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.
TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.
TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.
TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
TUBING, Fibre
*Beveridge Paper Co., Limited. Montreal.
TUBING, gold and silver
Canadian Seamless Wire Co., Toronto.
TUBS, Ice cream
Fletcher Mfg. Co., Ltd., Toronto.
TUMBLERS, foundry
*Northern Crane Works, Limited, Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited St. Catharines.
TURBINE PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
TURPENTINE
*Brown Corporation, La Tuque, Que.
TWEEDS
Rosamond Woollen Co., Almonte, Ont
TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.
TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.
TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd., Walkerville, Ont
UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.
UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
UNIONS
*Dart Union Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.
VALVES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
T. McAvity & Sons, Ltd., St. John, N.B.
*Penberthy Injector Co., Ltd., Windsor.
VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Mueller Mfg. Co., Ltd., Sarnia.
*Penberthy Injector Co., Ltd., Windsor.
*United Brass & Lead, Ltd., Toronto
James Morrison Brass Mfg. Co., Limited, Toronto.
VALVES, pressure reducing
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, regrinding globe, angle, cross checks, swing checks.
*Mueller Mfg. Co., Ltd., Sarnia.
Penberthy Injector Co., Ltd., Windsor, Ont.
VALVES, regulating
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.
VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt
J. & J. Taylor, Ltd., Toronto.
VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.
VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.
VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
VOLTMETERS AND AMMETERS
*Crouse-Hinds Co., Ltd., Toronto.
WAGONS
TudhopeAnderson Co., Ltd., Orillia,
WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.
WASHERS
*The Steel Company of Canada, Limited, Hamilton.
*United Brass & Lead, Ltd., Toronto
WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.
WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.
WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.
WASTES, wool and cotton
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited, Montreal.
*The Barrett Co., Ltd., Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton, Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont.
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEEL FLANGES
*McKinnon Industries Limited, St. Catharines, Ont.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal, Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia Ont.
WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHIPSOCKETS
*McKinnon Industries Limited, St. Catharines, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont

*For Display Advertisement see Index, Page 41

WHITE LEAD
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Medicine Hat Pump & Brass Mfg. Co., Medicine Hat, Alta.

WINDOW SHADES
Daly & Morin, Montreal, Que.

WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.

WIRE BALE TIES
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.

WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.

WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.

WIRE, insulated electric
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co of Canada, Ltd., Hamilton, Ont.

WIRE, weatherproof
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd, Hamilton.

WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto, Iron and Brass Goods Works Co., Ltd., Toronto.

WIRING DEVICES
*Crouse-Hinds Co., Ltd., Toronto.

WOOD
Standard Fuel Co., Toronto.

WOOD BORERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

WOOD PRESERVATIVE AND STAIN
*Beveridge Paper Co., Montreal.

WOOD PRINTERS
Barchard & Co., Ltd., Toronto.

WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi Chicoutimi, Que.

WOODBOARD
*Canada Boxboard Co., Limited, Montreal, Que.

WOOD SHOP, general work
*Canadian Rumely Co., Limited, Toronto, Ont.

WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

WOOD STAVE PIPE
T. A. Morrison & Co., Montreal.

WOOL
*H. V. Andrews, Toronto.

WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte.

WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada, Ltd., Niagara Falls, Ont.

WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.

WRENCHES
*McKinnon Industries Limited, St. Catharines, Ont.

WROUGHT IRON PIPE
*The Steel Compony of Canada, Ltd., Hamilton.

WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.

YARNS, cotton
Hamilton Cotton Co., Hamilton.

ZINC, electrical
*The Canada Metal Co., Toronto.

EXPORTERS OF
Reed Organs, Piano Stools,
Music Cabinets.
Catalogue B.

The Goderich Organ Co. Limited
GODERICH, CANADA

Closet Seats,
Flush Tanks,
Medicine Cabinets,
Everything for the Bathroom.
Write for Catalogue C and Price List.

ESTABLISHED 1875
The Boiler Inspection and Insurance Co. of Canada
Continental Life Building, Toronto

Issues Policies of Insurance after a Careful Inspection of the Boilers Covering Loss or Damage to Property and Loss Resulting from Loss of Life and Personal Injuries. Policies Guaranteed by The Hartford Steam Boiler Inspection and Insurance Company.
Assets for Security of Policyholders, $4,552,020.43.

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OLAF E. GRANBERG . . . . Vice-President
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T H-E

Now is the Time for Efficiency

If there is a temporary lull in business in your line—the time can be used to splendid advantage to get your plant in efficient shape so as to **secure maximum production at minimum cost.** Just now we are rendering assistance to many manufacturers in the matter of advice on their electrical drive and lighting. Are your motors in good shape? Are your lighting arrangements efficient—economical? A Hydro man will gladly talk these matters over with you at your convenience and without obligation to you.

Toronto Hydro-Electric System

226-8 Yonge St. Branch—Gerrard and Carlaw

Vol. XIX., No. 12 TORONTO, APRIL, 1919 $2.00 Per Year

INDUSTRIAL CANADA

Correcting a False Impression

We wish to correct an impression that we handle only big business.

True, we do handle the greatest number of "big" advertising contracts in the country, but most of these big accounts have been developed in this office from small beginnings.

If your account is small, you need all the advantages of our larger experience, to prevent making false and costly errors of advertising judgment.

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J. J. GIBBONS, LIMITED

General Advertising Agents

MONTREAL — TORONTO — WINNIPEG

Cables—Gibjay, Toronto

Codes—ABC, 5th Edition

PUBLISHED BY THE CANADIAN MANUFACTURERS ASSOCIATION INCORPORATED.

HEAD OFFICE TORONTO · BRANCH OFFICES, MONTREAL, HAMILTON, WINNIPEG, VANCOUVER, HALIFAX, QUEBEC.

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(AN ELECTRIC FURNACE CORUNDUM)

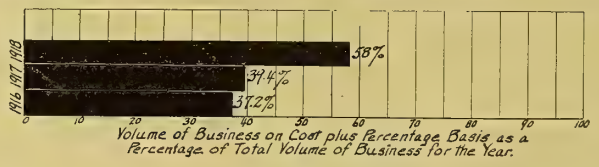
REDUCES POLISHING COSTS

FREE TRIAL SAMPLE FURNISHED ON REQUEST

Made by

CORALOX LIMITED - Hamilton, Ont.

Succeeding **D. A. BREBNER, Limited**



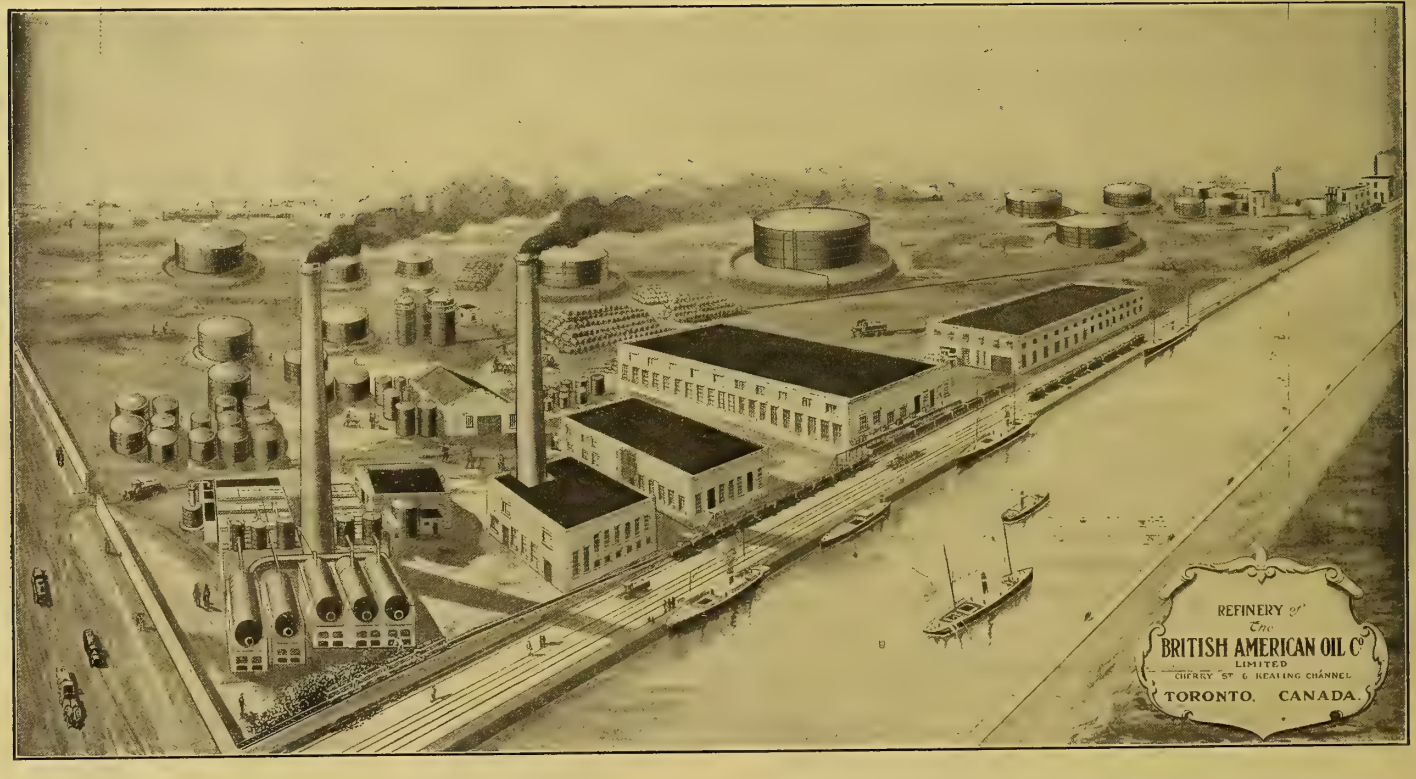
WE NEVER ABUSE THEIR CONFIDENCE IN US

JOHN V. GRAY CONSTRUCTION CO., LTD.

GENERAL CONTRACTORS

625 Confederation Life Building - - - - - TORONTO, ONT.

THE BRITISH AMERICAN OIL CO., LIMITED

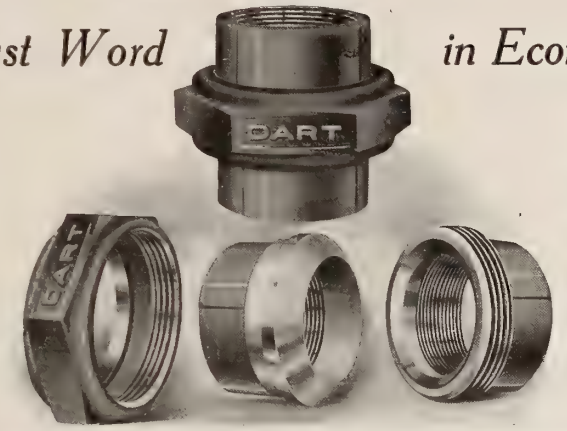


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Union Pipe Couplings Stay Tight Permanently

The Last Word *in Economy*



With Dart Unions attention or replacement are wholly unnecessary, and there's never any damage from leaks.

The "Bronze to Bronze at the Joint," and Heavy Malleable Iron Features prevent all possibility of loosing up in service.

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GRACE & CO., LIMITED

DOMINION EXPRESS BUILDING

MONTREAL - CANADA

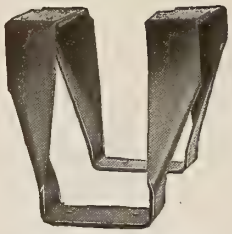
EXPORTERS

IMPORTERS

With our own extensive connections embracing practically all markets of importance we are in an unusual position to advise Canadian Manufacturers regarding Export Opportunities and also to submit offerings of the raw materials in which they are interested.

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RIO DE JANEIRO LIMA TOKIO SHANGHAI SAN FRANCISCO
VALPARAISO CUBA JAMAICA BUENOS AYRES SANTOS
STOCKHOLM BARCELONA GENOA PARIS

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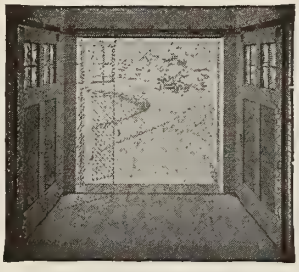


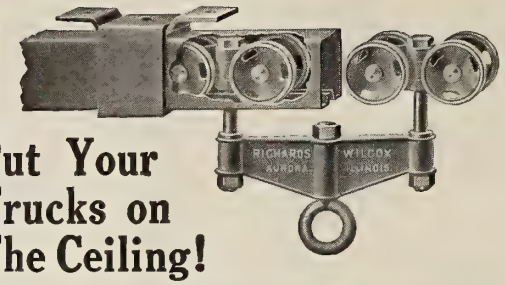
BULLDOG STEEL JOIST HANGERS

They never let go! Stronger than malleable. All sizes and styles for all kinds of work. Save space and time in erection.

GARAGE DOOR HARDWARE OF ALL KINDS FOR ANY PURPOSE

Angle Doors, Parallel Doors, etc. Special jobs receive the prompt attention of our engineering department. Let us know your requirements.





Put Your Trucks on The Ceiling!

The Modern Method of Factory Transportation

A Richards-Wilcox Carrier System—either I-Beam or Trolley—will pay for itself in one year on actual pay-roll saving, not to mention the increased efficiency. Occupies no floor space. Always ready for use. Operates easily, one man can handle 2,500 lbs. Trolley carriers made in sixteen styles and sizes for loads up to 2,500 lbs. For heavier loads use I-Beam Equipment.

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Richards-Wilcox Canadian Co. Ltd.

AURORA BOSTON NEW YORK CHICAGO — London Ontario — PHILADELPHIA MINNEAPOLIS SAN. FRANCISCO ST. LOUIS

"A hanger for any door that slides"

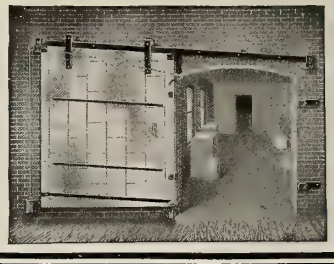
"R-W" TROLLEYS ARE BEST FOR ALL SLIDING DOORS



Specified by leading architects and engineers throughout Canada and the United States. "A hanger for any door that slides."

FIRE DOORS AND FIRE DOOR HARDWARE WITH UNDERWRITERS' LABEL

All styles, single or double, sliding or swinging. A fire door with labeled hardware is the surest way to prevent fire from spreading.



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Tadanac Brand

PRODUCED IN CANADA

BY

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TRAIL, British Columbia

COPPER—Electrolytic Ingot, Bar, Slab and Cake

SPELTER—High-Grade Electrolytic Zinc, Brass Special and Prime Western

PIG LEAD—Chemical, Corroding and Common

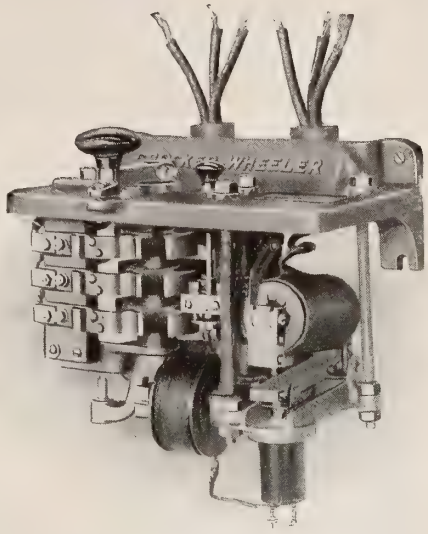
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YOUR MOTOR IS LIKE A THOROUGHBRED HORSE. IT WILL ANSWER THE DEMAND FOR EVEN UNREASONABLE SERVICE WITHOUT A WHIMPER RIGHT UP TO THE BREAKING POINT. **THEN**—COSTLY REPAIRS OR RENEWALS!

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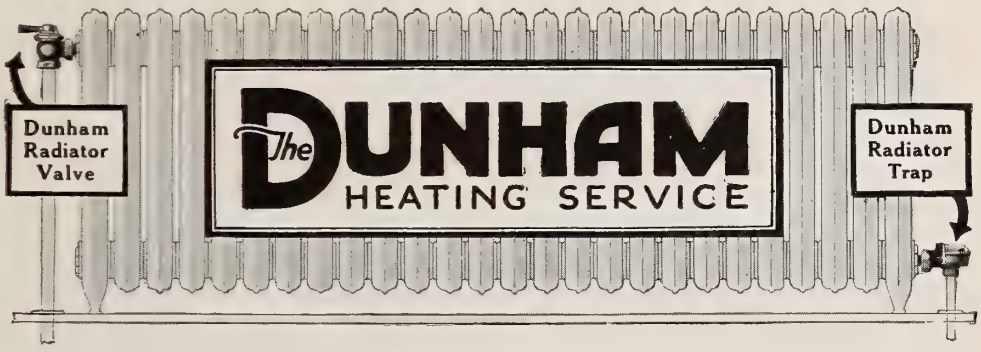


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CROCKER - WHEELER COMPANY
LIMITED
Manufacturers and Electrical Engineers

Head Office and Works: ST. CATHARINES, ONT.

District Offices: TORONTO and MONTREAL



A Timely Service---and the Company behind it

The public wants better steam heating service---more comfort per ton of coal. This Company is in a most favorable position to meet this demand through its co-workers---the architects, heating and ventilating engineers, heating contractors and builders---to whom it offers practical co-operation that will increase their prestige as well as their volume of business.

Any man who uses, specifies or installs steam heating equipment will find it advantageous to learn more about Dunham Heating Service---the product of 15 years knowledge of steam heating in all its phases.

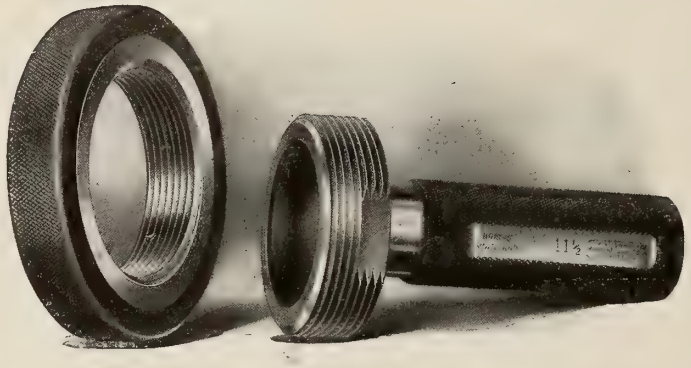
C. A. DUNHAM COMPANY, LIMITED, Toronto, Ontario

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MILLING CUTTERS

In High Speed or Carbon Steel



Plain Side Convex
Concave Angular
and
Special Forms

Special Inserted
Blade Cutters

Our tools are manufactured from the best materials procurable, by skilled workmen with most modern equipment.

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Dundas - Ontario

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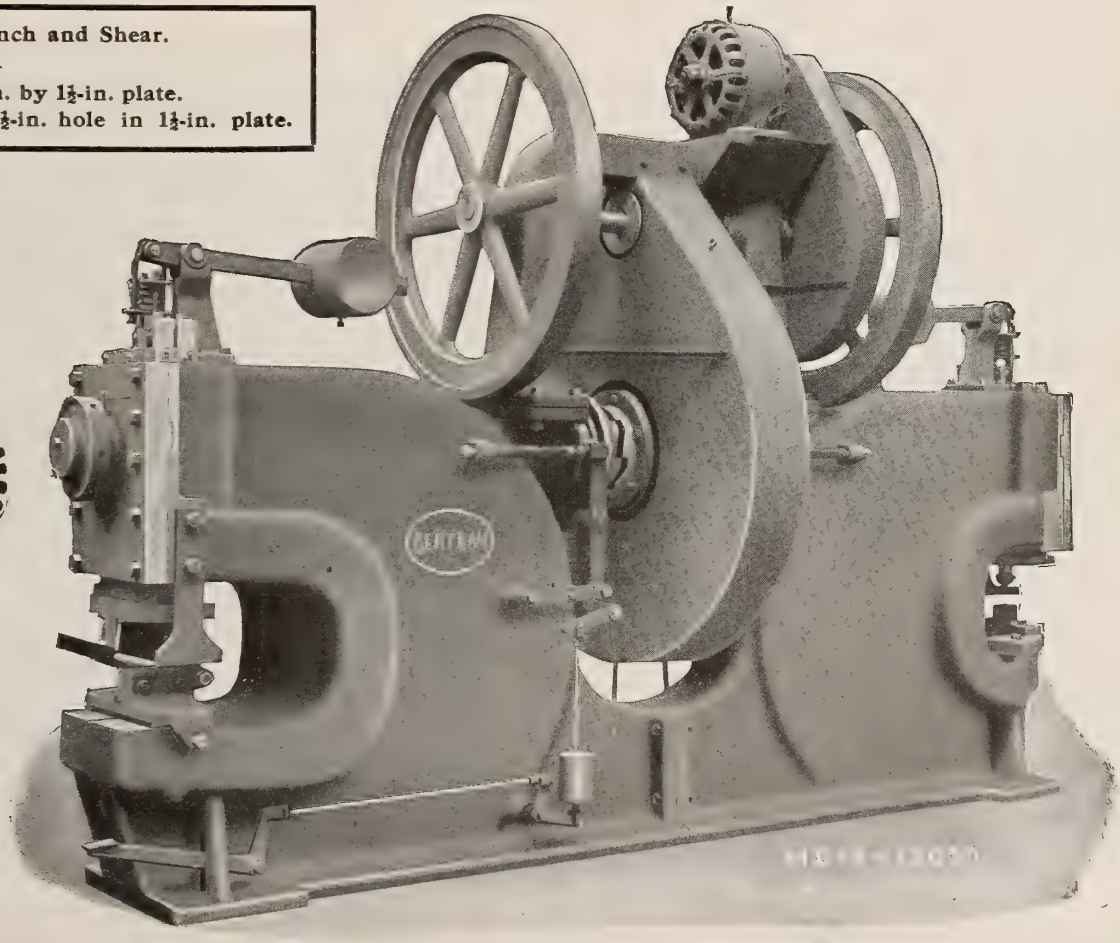
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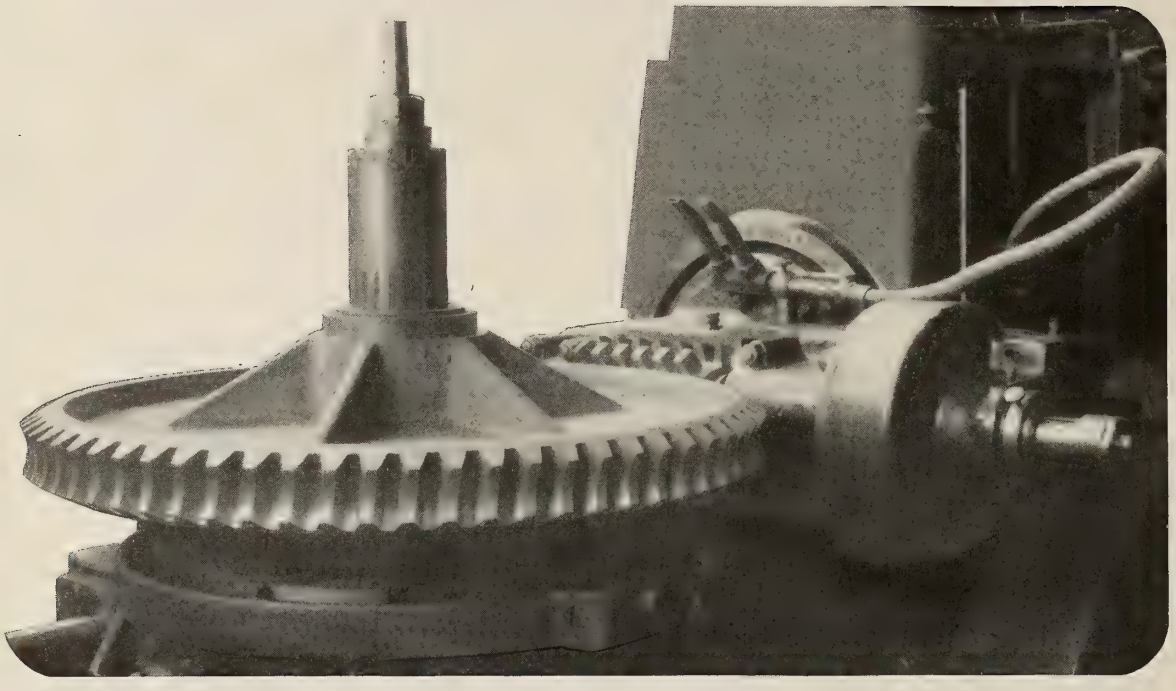
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whose plant has been brought to a high state of efficiency by using our service. We refer to Messrs. A. Schrader's Sons Inc., Toronto. Every automobile owner is directly benefited by Schrader efficiency reflected in their absolutely dependable tire valves and pressure gauges

Mr. Cole, the General Manager, once said to us, "There is one thing about the Geo. B. Meadows Company, when we want them, they are on the job, and our work is put through in the way we wish and when we want it. We have never had such prompt service as you give, either here in Canada or in the United States"

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This illustration shows Steel Assembling Tables and Steel Chairs manufactured in our factory for the Schrader Plant



The Racks pictured above had to be carefully designed so as to stand the eccentric loads. Designing and planning is part of our service

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The ECONOMY is the pioneer that opened up the renewable fuse field. This is the fuse with the incomparable renewal element—the "Drop Out" Link.

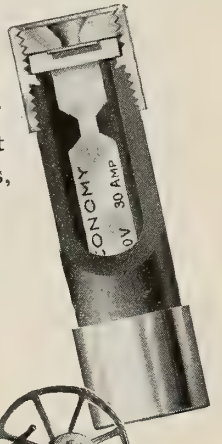
An inexpensive "Drop Out" Renewal Link restores a blown Economy Fuse to its original efficiency. It does away with the need of powdered filler. Even a novice can replace the link and renew the fuse in a jiffy.

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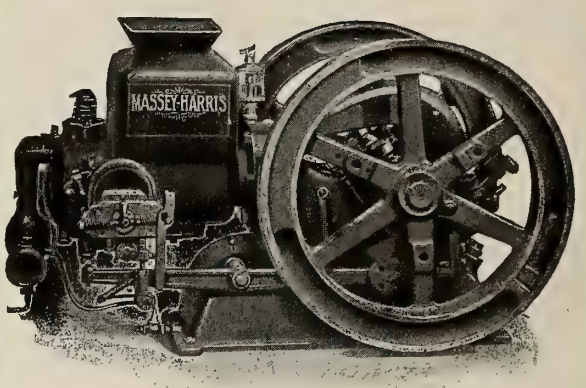
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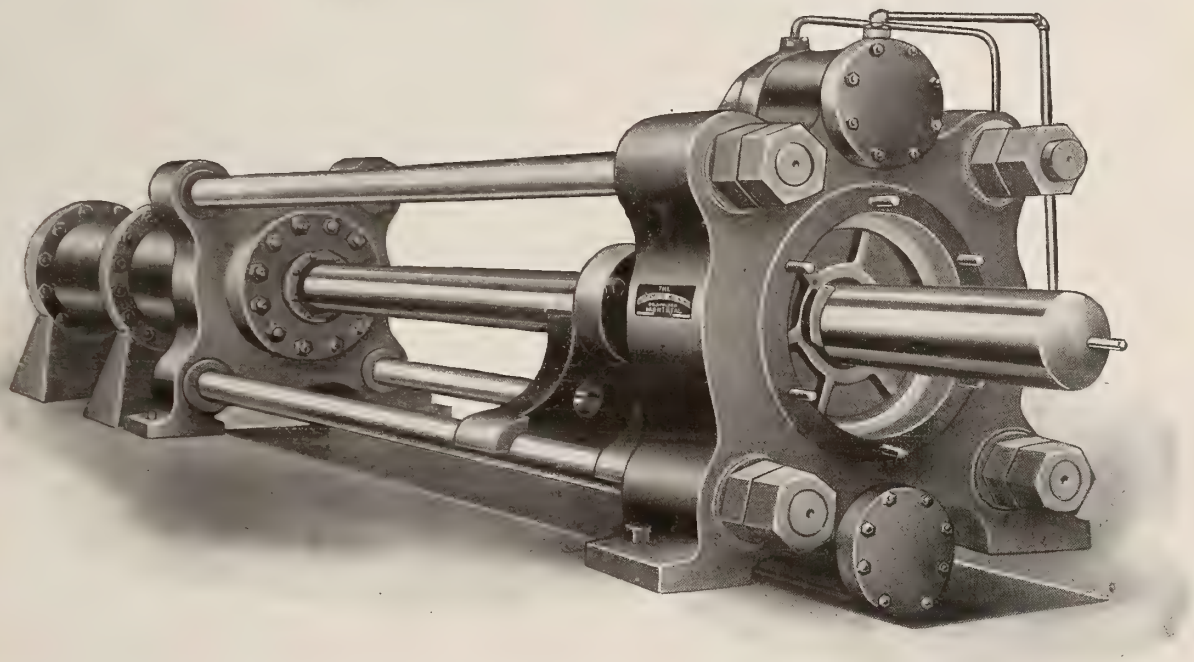
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The JONES Underfeed Stoker

— means more power from less fuel

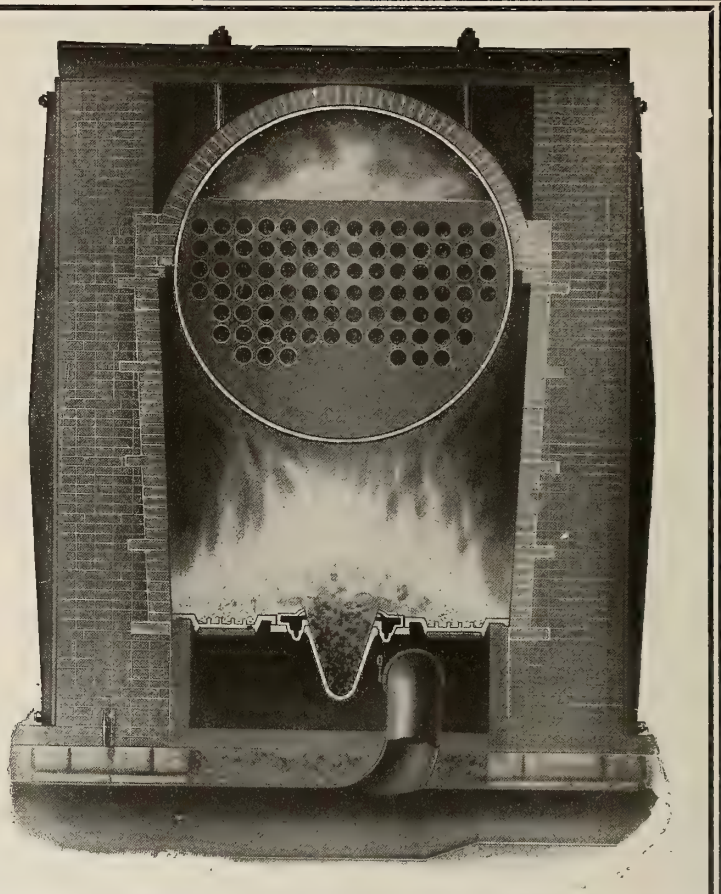
Every manufacturer developing his own steam power needs a Jones Underfeed Stoker.

You need a **JONES STOKER** in your plant to reduce consumption of that **high priced coal.**

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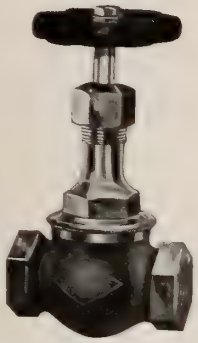


Fig. 106



Factory and Head Office of
JENKINS BROS. LIMITED
Montreal, Canada



Fig. 141

Where plants are scientifically operated, valve value is measured by service rendered, and by yearly ***lack*** of up-keep cost.

If valves break down before other items of equipment, an injustice is done to the entire plant; because valves should last as long as good plant equipment. Good valves do.

Consider—40 per cent. of the Nation's Coal Pile is lost each year by power plants, from their coal investment through poor steam transmission, and from unnecessary labor costs.

JENKINS BROS.' VALVES will keep your plant running and save you money.

A Protection to the User

A steam user who installs Jenkins Bros.' Valves, can do so with the knowledge that he is protected by the maker against defects and imperfections. Our dealers have instructions to replace, without question, any imperfect or defective Jenkins Bros.' Valve returned to them.

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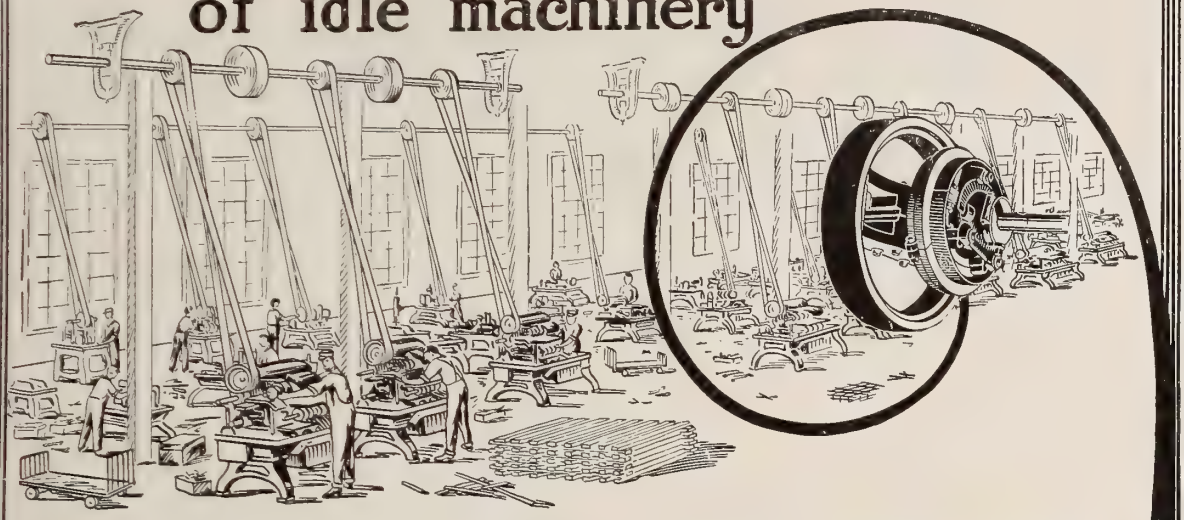
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the waste power of idle machinery

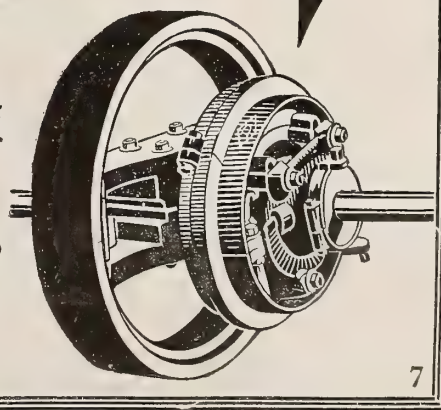


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A GOOD friction clutch mechanism when used either as a clutch pully or a cut-off coupling is a mighty good thing in many places around a mill or factory—but when you can add to this the "split" feature you've got something real to talk about—most good mechanics know this, the trick is to get "the Boss" to know it. The timely throwing out of a Clutch Lever often prevents serious accident.

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7

THE CIRCO PAGE

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Showing the "CROWN" Sand-Rammer at work

ACTUAL FOUNDRY RESULTS			
Size of Cope	Time in Peining and Ramming		Per Cent. Time Saved
	By Hand	By "Crown" Sand-Rammer	
12′ x 18″x 4″	5 min.	1 min.	80
6′ x 3″x 6″	20 min.	3 min.	85
8′ x 6″x 6″	1 hr.	10 min.	83
15′ x 30″x16″	2 hrs.	27 min.	77
87″x159″x10″	4 hrs.	40 min.	83
19″x 90″x15″	8 hrs.	1 hr. 30 min.	81

Our "CROWN" Sand-Rammer bulletin is worth sending for

Canadian Ingersoll-Rand Company Limited

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Hy-Rib Roof Ready for Concreting.



Use Hy-Rib for Ceilings



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The Quick and Economical Way to Build Fireproof Roofs and Sidings

Build with Hy-Rib—insure having structures that are fireproof and permanent, yet economical and quickly built. Hy-Rib builds concrete roofs and sidings which need be only two inches thick and require no form work—thus saving labor and materials

At about half the cost of other permanent constructions, Hy-Rib produces monolithic sidings. Roofs of Hy-Rib are light in weight, fireproof and economical. Hy-Rib is also widely used with concrete stucco and plaster for partitions, ceilings, walls, floors, etc.

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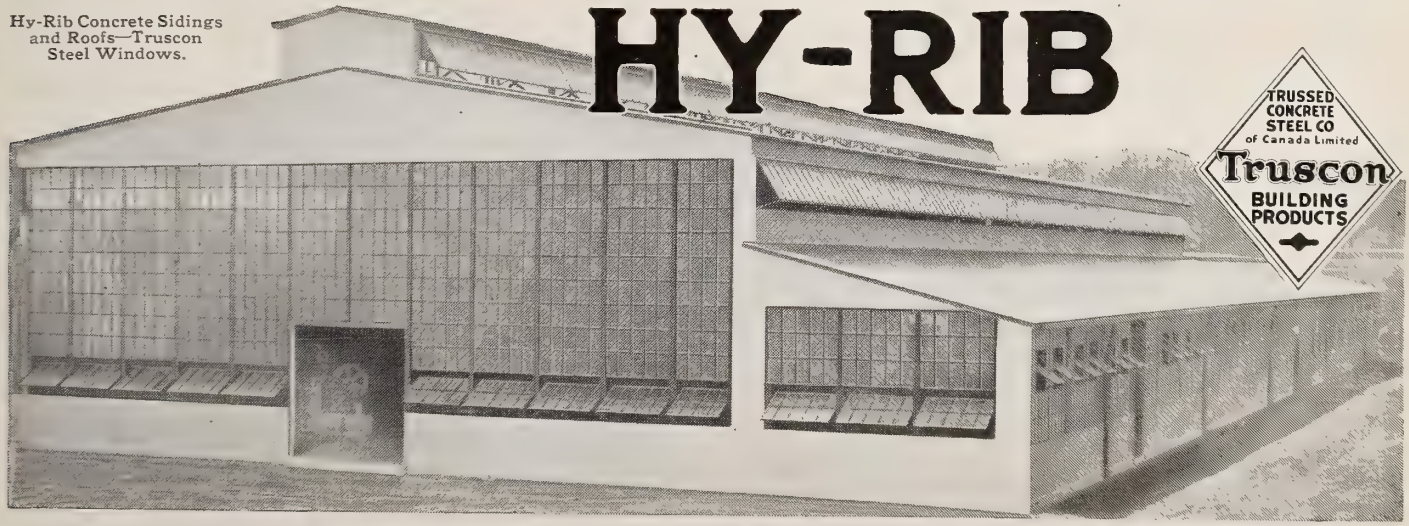
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Hy-Rib Concrete Sidings and Roofs—Truscon Steel Windows.

HY-RIB

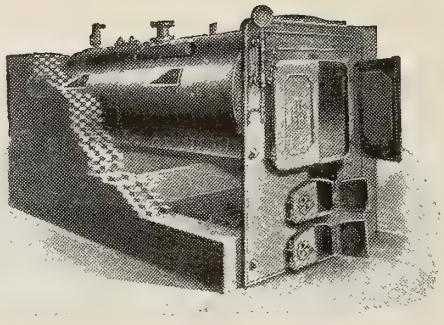




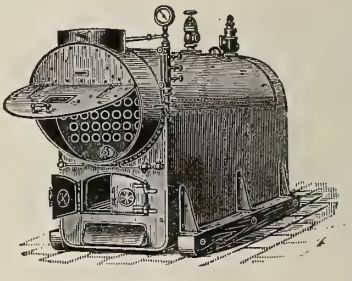
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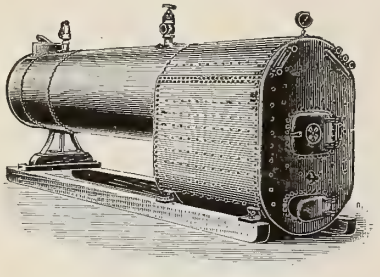
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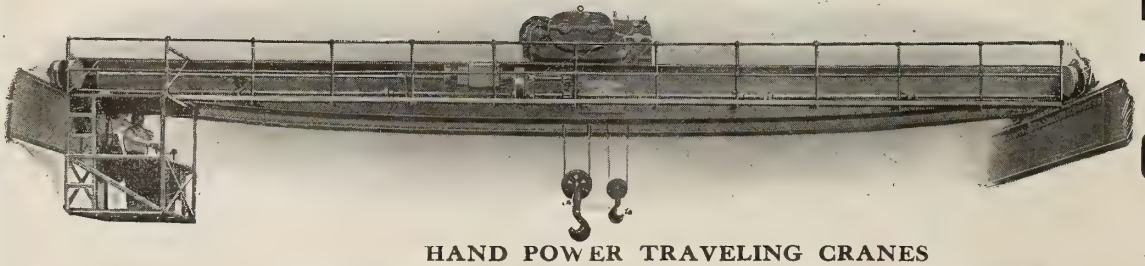


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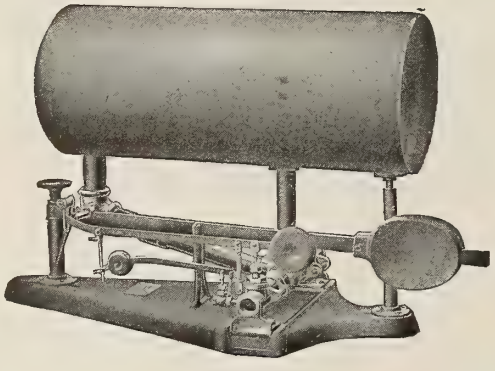
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Q.—Are you the chap I gave the High Speed Steel Tools to?

A.—Yes, sir.

Q.—How do they work?

A.—Fine, there they are on the bed of the lathe.

Q.—What have you got in the lathe?

A.—***STELLITE***—How do you think I got my production?

Moral—If the operator wants ***STELLITE*** get it for him—he knows, and the results show in added production.

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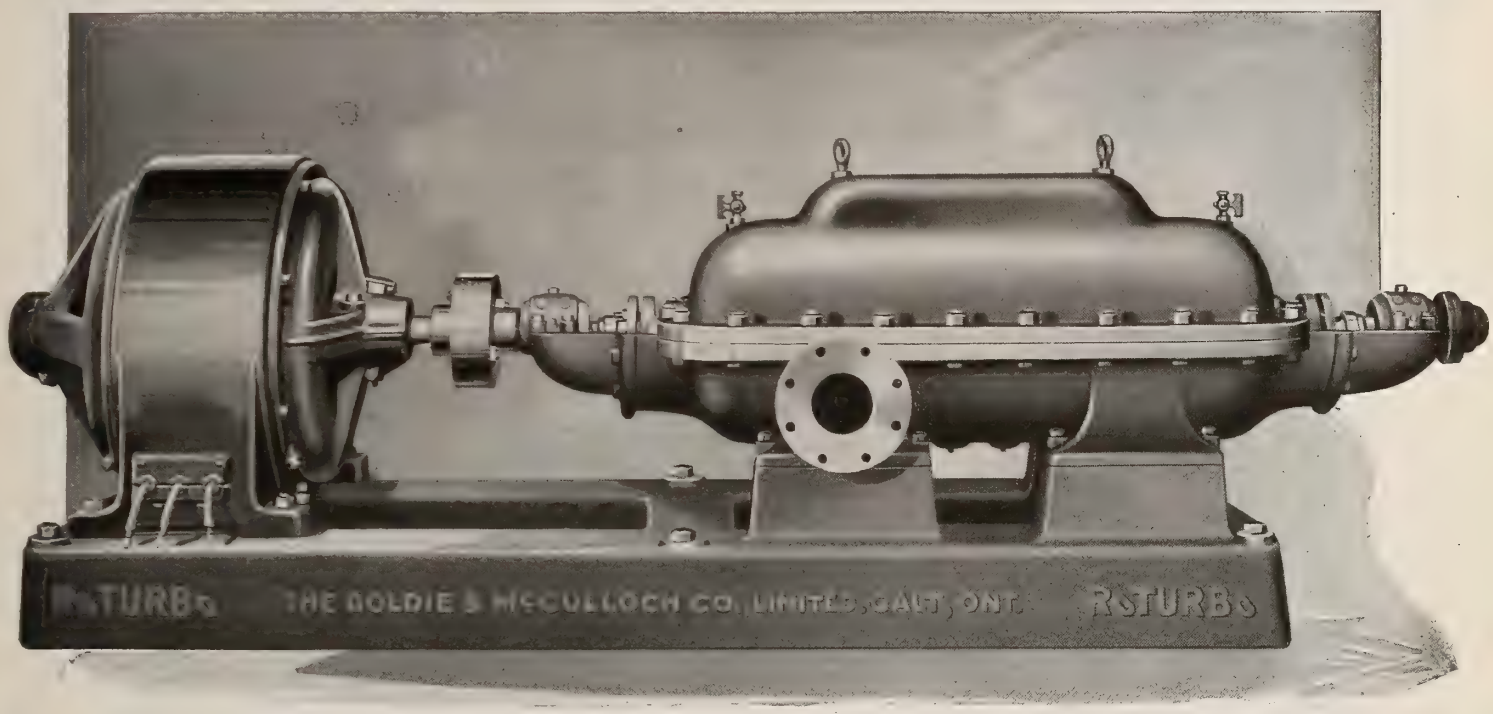
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Patent Pressure Chamber Pump

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The **RoTURBo** will meet your pumping problems with greater economy and with higher efficiency.

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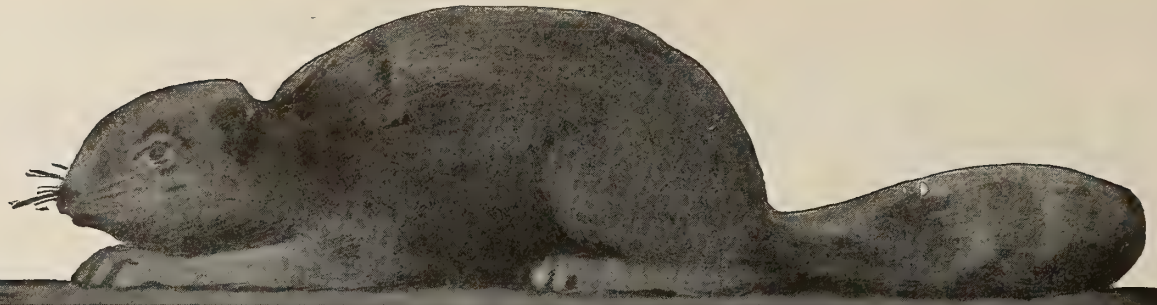
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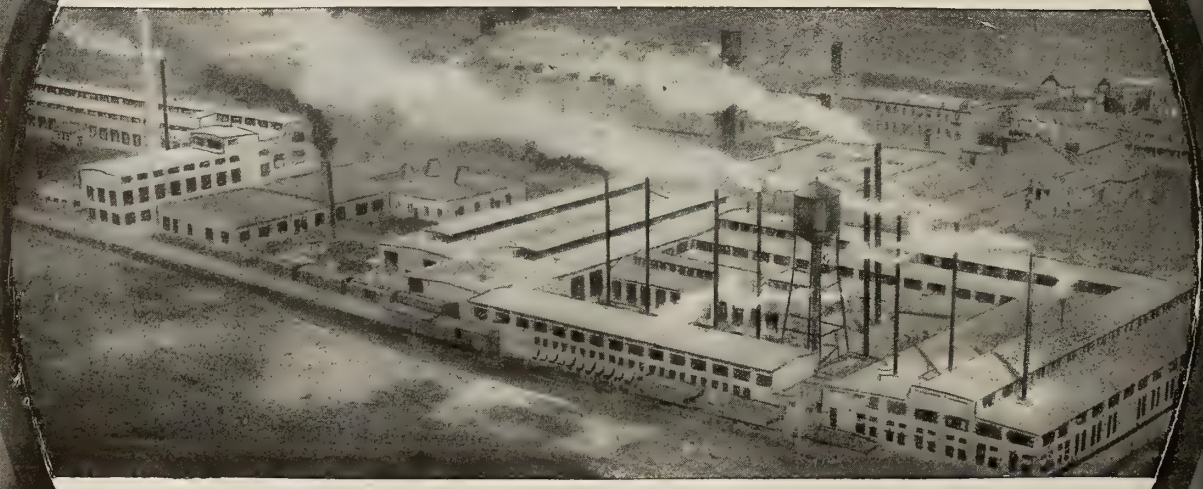
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> "Your Extra Power Belting is giving us splendid satisfaction. We were averse to trying Extra Power, but now we are sorry we did not use it when we installed our latest equipment.
>
> "We now have about $1,500 worth in use in our plant.
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Such tests as this are the basis of the astonishing success of Goodyear Extra Power Belting. Where ***unusual*** service was needed — Goodyear Extra Power made good. The result has been a vast sale of Extra Power for ordinary drives—the "day-in-and-day-out" drives that factory men want to equip with good belts and forget.

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Often it has overcome conditions under which other belts failed completely.

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Always it has cut belting costs ***and*** power cost.

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Fireproof Construction for Every Class of Structure

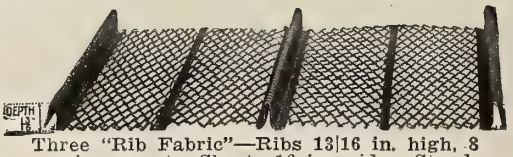
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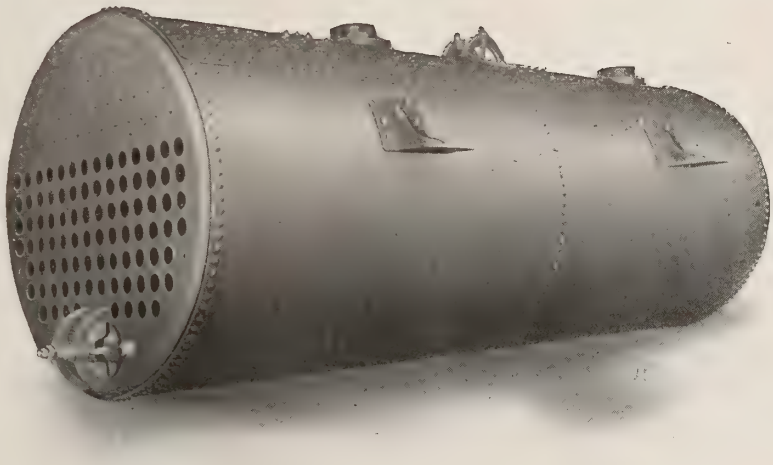
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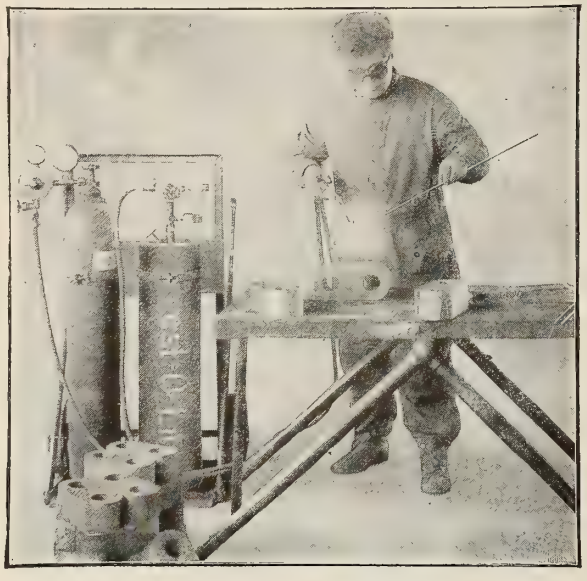
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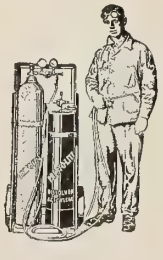
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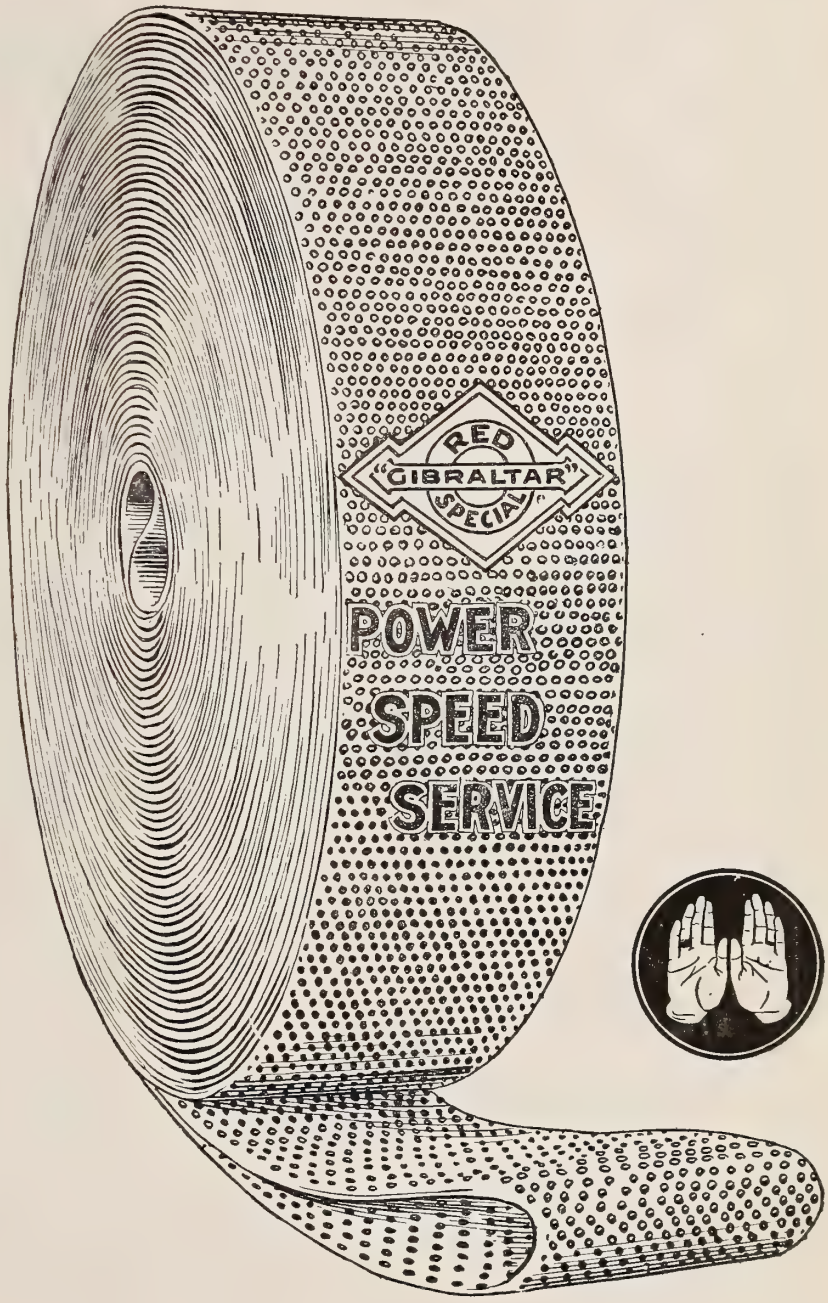
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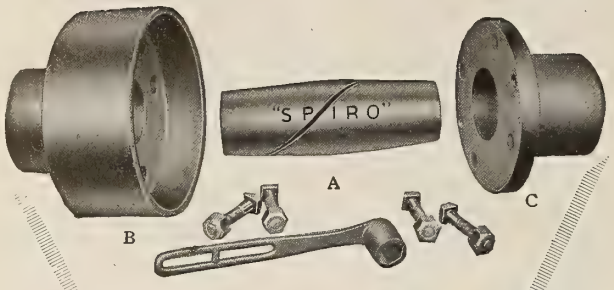


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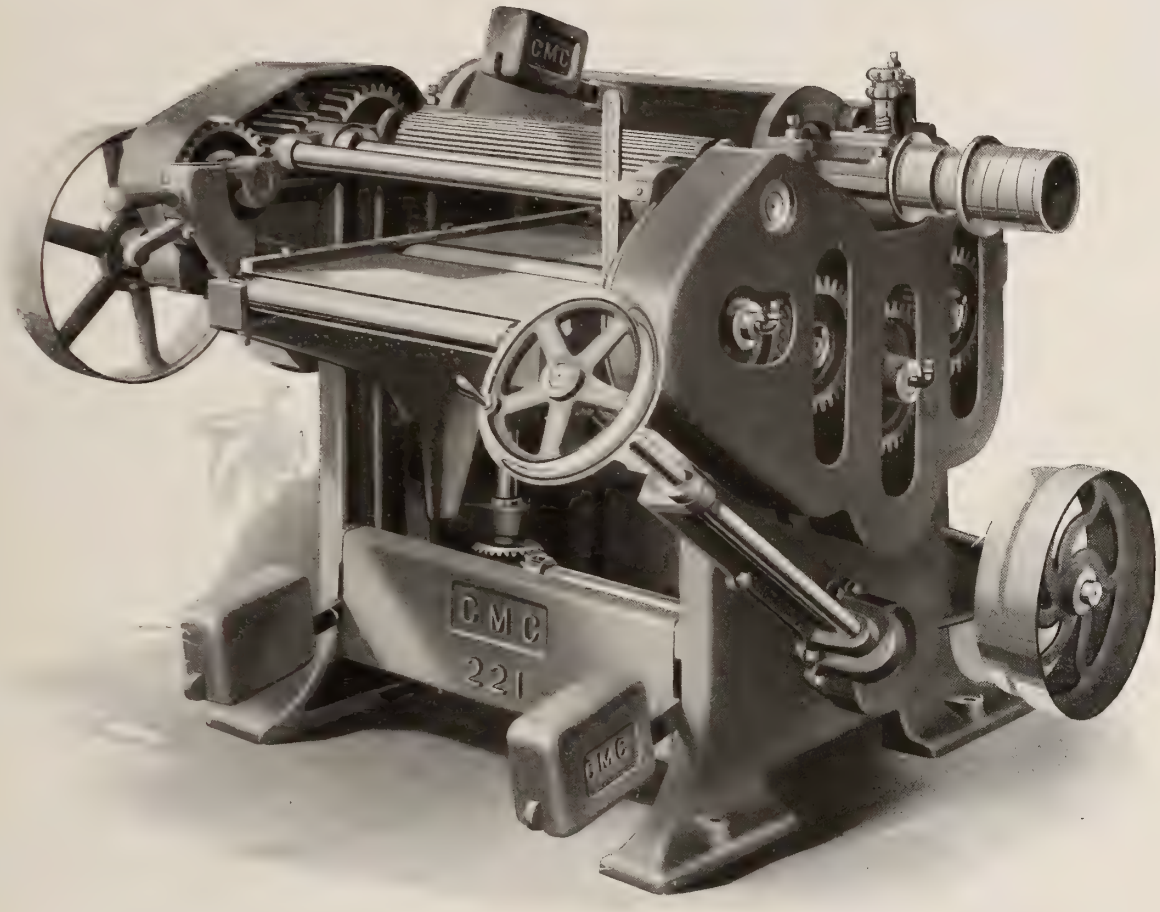
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We believe it is the best pony planer built and would like to send you a descriptive bulletin telling you why.

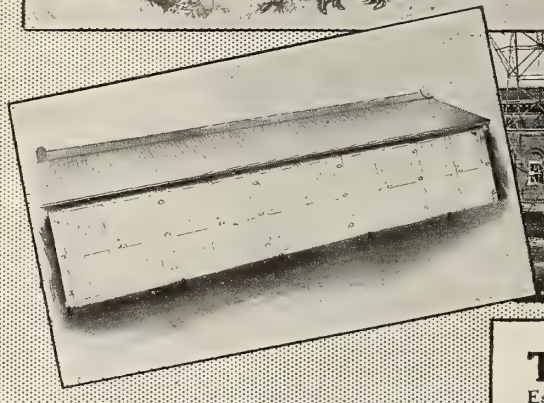
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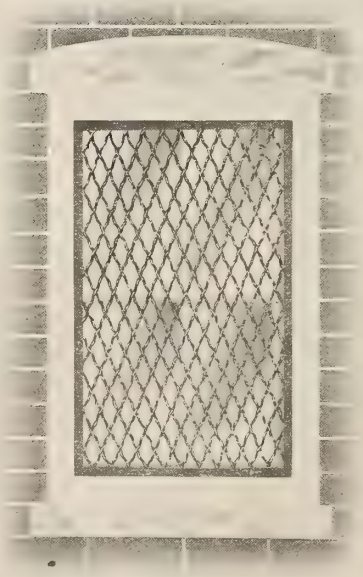
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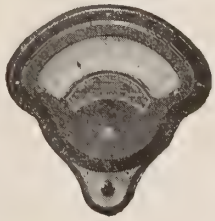
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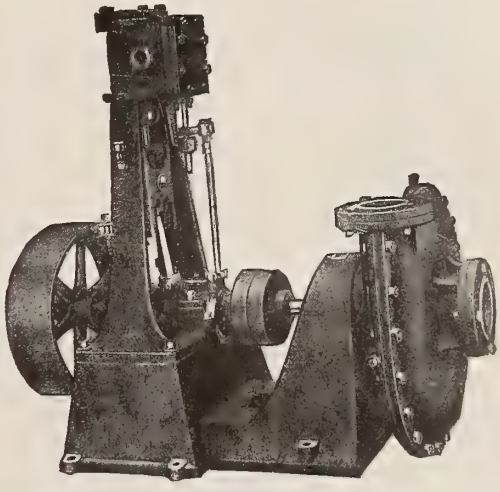
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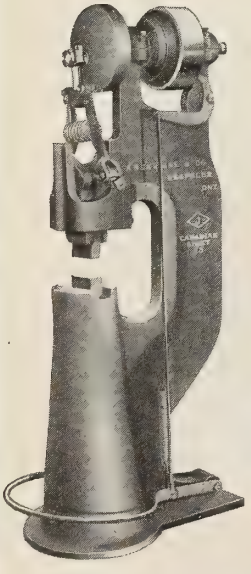
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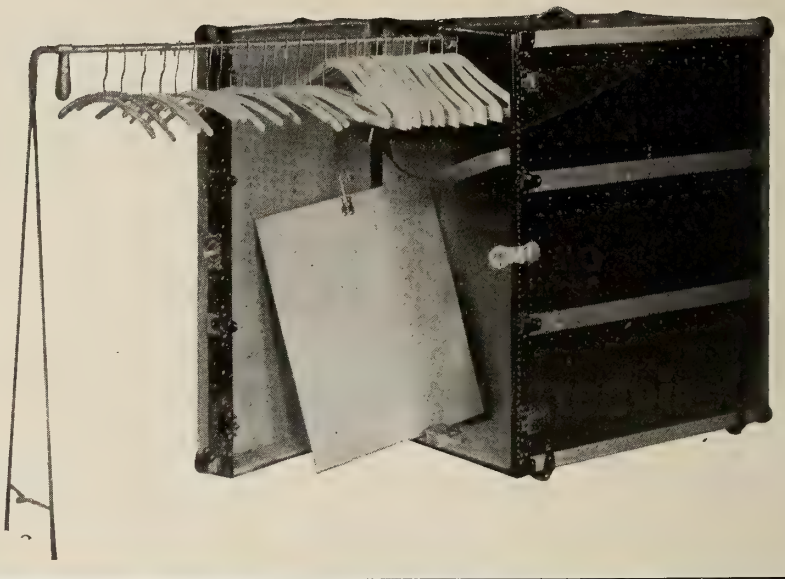
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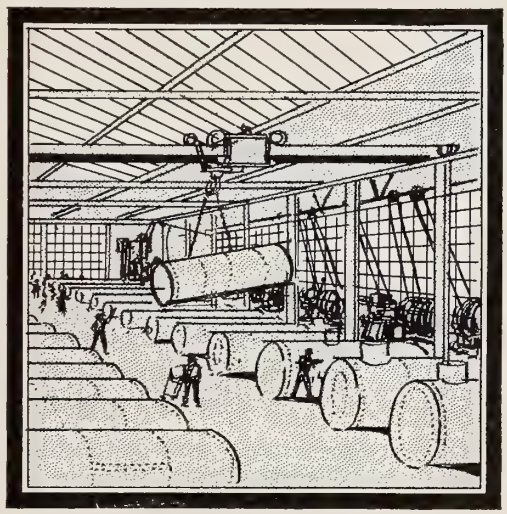
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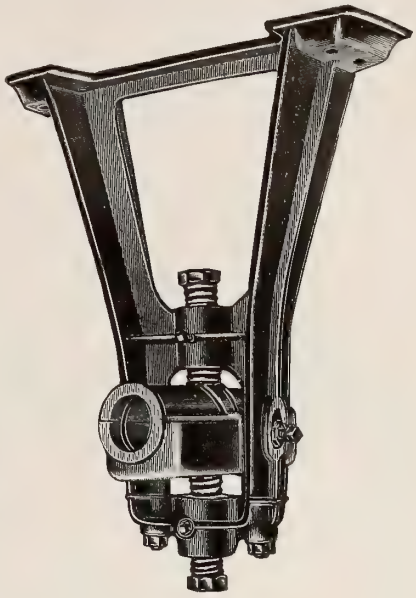
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AND

PLUMBAGO STOPPER HEADS

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1....	50	3	750	550	25	Yes	Can. Gen. Elec.
1....	60	3	750	550	25	Yes	Crocker Wheeler
2....	50	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	Lincoln
1....	25	3	750	220	25	Yes	C.G.E.
1....	10	3	1500	220	25	Yes	T.H.E.
1....	3	3	1500	220	25	Yes	Westinghouse CCL
1....	½	1	1800	110	60	No	Fort Wayne
1....	¼	1	1800	110	60	No	Westinghouse
1....	¼	1	1800	110	60	No	Fisher
1....	40	2	900	220	60	Yes	Fuller Wenstrom
1....	15	2	1800	220	60	No	T.H.E.
2....	5	2 or 3	1800	...	60	No	West. CCL rewound
2....	1	2 or 3	1800	...	60	No	West. CCL rewound
1....	½	2	1800	220	60	No	Westinghouse CCL
2....	10	2 or 3	1200	...	60	No	West. CCL rewound
1....	5	..	1200	220	60	No	Union (New)
2....	3	3	1800	220	60	No	C.G.E. rewound
4....	7½	3	1800	220	60	Yes	Lincoln

TRANSFORMERS

1.... 40 K.W. Type R 2200-220 volts. Packard

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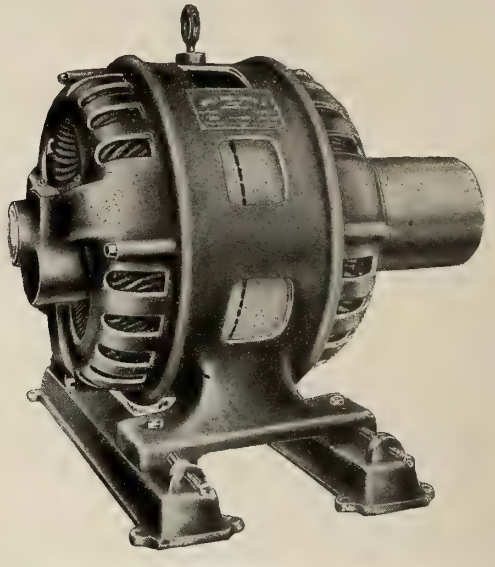
1.... Type C Ostrander Seymour 6 volt—speed 750—amp. 800

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Jones & Moore Electric Co. Limited

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Yates No. 108 Moulder

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It is the favorite of practical men whose experience enable them to compare the accessibility and sturdiness of the No. 108 with other machines designed for the same purpose.

This machine combines the sturdiness of an inside moulder with the accessibility of an outside moulder. All adjustments are placed in the most convenient positions. The jointing devices, one of which is shown above, make a fine finish possible by keeping the knives sharp and each doing its share.

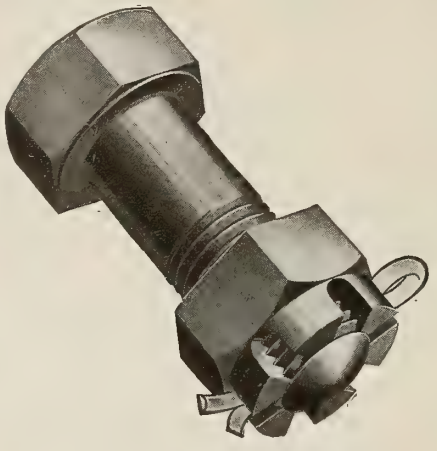
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Plain and Castellated NUTS

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Standard sizes and threads

Special screw machine work made to specifications from Iron, Steel and Brass Bars in sizes up to 2¼" and 10½" long.

Quotations on your samples or blueprints.

The National Acme Company

De Courcelles and G. T. R. Montreal, P.Q.



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SOUTHAM PRESS LIMITED

CANADA'S LEADING PRINTERS

TORONTO MONTREAL



Dominion Friction Surface Belting

Conserves Power and Labor, Increases Production, and Cuts Manufacturing Costs

The lowest possible manufacturing cost is obtained only through highly efficient equipment that will conserve power and labor and "speed up" production.

Dominion Friction Surface Belting is the most economical and efficient transmission equipment obtainable.

Dominion Friction Surface Belting is more than water-proofed fabric—it conserves power by taking a "bull-dog" grip on the pulleys, that practically eliminates slipping and transmits the maximum force that can be transmitted by a belt.

The economy, uniformity and dependability built into Dominion Friction Surface Belting insure long and continuous service, which saves much time, energy, trouble and worry for employees and prevents idle machines by removing the cause of transmission troubles.

Dominion Friction Surface Belting "speeds up" production by giving long and continuous service—by conserving power and labor and insuring satisfied operators.

In the largest
Paper Mills
Flour Mills
Steel Plants
Sugar Refineries
Textile Mills
Grain Elevators
Railway Shops
Machine Shops
Saw Mills
Power Houses
Cement Mills
Automobile Plants
Quarries
Mines
and wherever Transmission is required.

Our belting engineers can help to cut your manufacturing costs just as they have helped other manufacturers.

One of our service branches is within phone call of your plant—your request for advice places you under no obligation.

SERVICE BRANCHES

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St. John	Hamilton	Winnipeg	Calgary
Quebec	London	Brandon	Lethbridge
Montreal	Kitchener	Regina	Vancouver
Ottawa	North Bay	Saskatoon	Victoria

CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES

Makers of Dominion Hose, Packing and Industrial Rubber Goods and Dominion Tires the GOOD Tires for every purpose.

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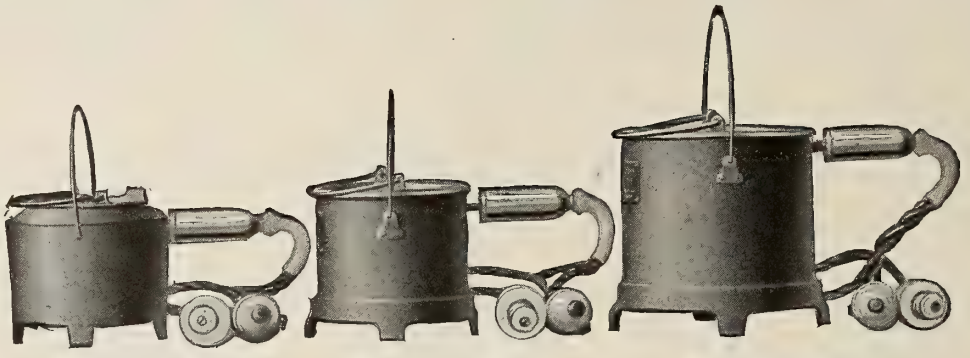
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Westinghouse

Industrial Heating Appliances



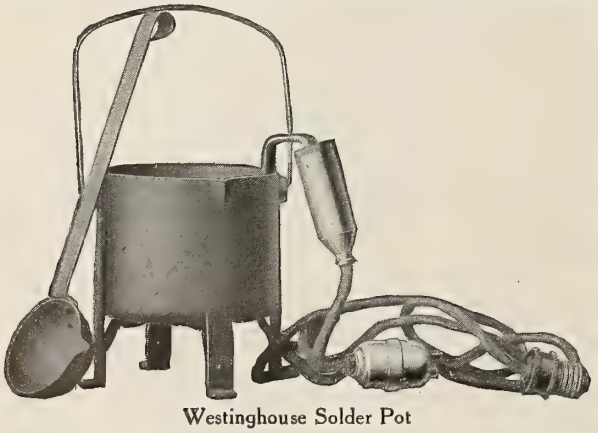
Westinghouse Portable Cast-Iron Type Glue Pot 1 Pint Capacity

Westinghouse Portable Copper-Type Glue Pot 1 Quart Capacity

Westinghouse Portable Copper-Type Glue Pot 2 Quart Capacity

Electrically Heated Glue Pots have advantages possessed by no other method of heating. There is no flame, no smoke, no soot. All the heat is inside where it is wanted, and the pot can be used among combustible materials with perfect safety.

There are no steam or gas pipes, only a flexible cord to bring the heat to the pot. A portable pot may be used, and can be placed wherever there is a lamp socket.



Westinghouse Solder Pot

Electrically Heated Solder Pots for individual use are the most satisfactory, economical and safest means of melting solder, lead, tin, babbitt, and similar metals, and keeping them in a liquid condition.

Not having to carry the melted metal in ladles to the work saves time and eliminates the danger of serious burns to employees.

These, and other Westinghouse Industrial and Domestic Electric Heating Appliances are fully described in Catalogue No. 8-C.

Canadian Westinghouse Company, Limited, Hamilton, Ontario

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WINNIPEG 158 Portage Ave. E. | EDMONTON 211 McLeod Bldg. | CALGARY Canada Life Bldg. | VANCOUVER Bank of Ottawa Bldg.

INDUSTRIAL CANADA

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Two Dollars per Year Single Copies 20 cents
Advertising Rates made known on application

OFFICES
1404 BANK OF HAMILTON BUILDING
TORONTO

Made in Canada



Westmount Boulevard, Westmount, Montreal.
Constructed with "Tarvia-X" in 1912.

Dustless, Durable Roads—

ALL day long the automobiles go whirling through this street and there is no dust—the air is clear and clean, the foliage stays fresh.

This means that the road is rightly constructed; that it is strong enough to withstand the traffic on its surface.

For clouds of dust following an automobile mean that the road is *"wasting away."*

So also is the ratepayers' money that paid for the road originally and will soon have to pay for its reconstruction.

Dusty roads are absolutely unnecessary.

Build and maintain your roads with Tarvia and instead of being *weaker* they will be *stronger* than the traffic which passes over them.

Tarvia is a coal-tar preparation which reenforces the road-surface and makes it water-proof, dustless and mudless.

Strange to say, it does not add to the cost to make a road dustless and durable with Tarvia, because the use of Tarvia reduces the annual up-keep expense to such an extent that it *more than pays for the cost of the treatment.*

Many cities and towns have adopted the use of Tarvia on a large scale simply to reduce their annual road bills.

If you are interested in the road proposition, write us and we will send you a booklet showing towns all over the Dominion that have used Tarvia successfully and economically.

Special Service Department

This company has a corps of trained engineers and chemists who have given years of study to modern road problems. The advice of these men may be had for the asking by any one interested.

If you will write to the nearest office regarding road problems and conditions in your vicinity, the matter will have prompt attention.

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N. B. HALIFAX, N. S. SYDNEY, N. S.

INDUSTRIAL CANADA

ISSUED BY

The CANADIAN MANUFACTURERS ASSOCIATION.

INCORPORATED.

Vol. XIX. TORONTO, APRIL, 1919 No. 12

Editorial Comment

Jobs—The Solution

"HYSTERIA will never solve the problem of unemployment, laws will never solve it, prayers will never solve it. Jobs will."—*New York Sun.*

The only way to keep jobs alive is to keep business alive. If business is injured by the excessive demands of the workers or by low tariff and free trade agitation the number of jobs will surely decrease.

Labor and Bolshevism

IT is believed that organized labor will not allow itself to become associated in any way with Bolshevism. Labor men should draw a clear line between themselves and the advocates of European revolution. In the past, disputes, no matter how protracted, were always adjusted because it was realized that the interests of employer and employee are identical. The common object is to make a living and they must work together to do this. Bolshevism, on the other hand, does not recognize the employer, government, law, order, or private property. The employee and employer are allies. The Bolshevist is their common enemy.

The Seattle Strike

THE general strike in Seattle on February 6th failed. The strike committee issued orders to the people of Seattle regulating their lives during the strike. One sentence read, "persons having no urgent business to attend to on the streets after eight o'clock in the evening should remain at home."

The Mayor of Seattle, Ole Hanson, took prompt action. He pointed out that the Government of Seattle was situated in the city hall and not in the labor temple. He organized and armed a special police force of 1,500 men and secured a detachment of United States Regulars. "The time has come for every man in Seattle to show his Americanism," said Mayor Hanson. "Go about your daily duties without fear. We will see to it that you have food, transportation, water, light, gas and all the necessities. The anarchists in this community shall not rule its affairs. The Labor Union must now cleanse themselves of the anarchist elements or the Labor Unions must fall. They are in trial before the people of this country. I take the position that our duty as citizens stands ahead of the demand of any organization on the face of the earth. The union men, the business men, the churchmen, must first of all be citizens. Any man who owes a higher allegation to any organization than he owes to the Government should be sent to a Federal prison or deported."

The citizens of Seattle strongly supported their Mayor. The majority of the workmen who did not want to strike out but had been coerced into striking, immediately resumed their duties.

Employment Management

THE tendency to pay increased attention to the supervision of personal in industrial establishments is becoming more common.

In many plants this has resulted in the creation of a new department, the employment department, in charge of a specially qualified manager whose duties are not only to engage new employees and assign them to suitable positions, but also to keep in touch with those who are already employed with a view to determining whether or not they have been given their proper work.

This department is also useful in removing the causes of discontentment among employees. It finds out the grievances before these grievances can crystallize into hostile action.

The Swing Towards Protection

FREE trade seems to be dying out all over the world. No doubt the war has hastened its end, because all the countries engaged have found it absolutely necessary to manufacture what they need at home in order to provide employment for their own soldiers and war workers.

Great Britain has prohibited the importation of manufactured goods, except under special Government license, until the 1st of September next, when the subject will be reviewed. The regulation does not apply to the British Dominions.

France is not lowering its tariff, but, on the contrary, is shutting out the goods of other countries by a system of import licenses. Italy is doing the same. South Africa

is increasing its tariff, which was designed for revenue only, in order to protect home industry. Australia, New Zealand, Newfoundland, Japan, Brazil and Portugal are all jealously maintaining their tariffs.

As the Republican party has now a majority in both the Senate and Congress of the United States, and since that party has always supported a higher tariff than that advocated by the Democratic party which is going out of power, opinion in the United States runs strongly in favor of an upward revision of the tariff schedules.

It is scarcely likely that Canada, a young country in which industry is still in the process of establishment, will be the only country to throw down its safeguards.

Italian Labor Situation

THERE appears to be less labor unrest in Italy than any other country. There has been only one strike since the signing of the Armistice and that was by the printers in Rome and Milan who asked for an eight-hour day.

A permanent national committee, which includes representatives from both labor and capital was formed three months ago with headquarters at Milan. This joint committee considers disputes and hears representatives from both sides. Up to the present its efforts to prevent strikes have been very successful.

Crippling the Railways

IF the tariff wall between Canada and the United States is broken down and traffic is encouraged to move north and south, what will happen to our east and west transcontinental railways?

These railways and our entire transportation system, including canals and steamboat routes, were constructed on the supposition that, if Canada was to remain a nation, traffic would move mainly east and west.

Reciprocity, or free trade with the United States, of course, means an increase in north and south traffic at the expense of east and west traffic. The people of Canada now own two of our transcontinental railways, and will be taxed to pay any deficit which may arise through loss of traffic.

Unemployment.

THE extraordinary thing is, not that there is so much unemployment in Canada, but that there is so little. When the armistice was signed there were about 300,000 people employed in the munition factories, and there were over 300,000 soldiers still in uniform. It was immediately apparent that the manufacturers would have to provide most of the jobs.

They co-operated with the soldiers' organizations and labor unions, and found on the whole that both the soldiers and workers took a very reasonable and just view of the situation. Without the assistance of these organizations the manufacturers could not have pulled through the trying months since the signing of the armistice.

We are pulling through. Spring is here. Governments, legislatures, municipalities, all have begun public works that require men and materials. Great Britain has lifted her import restrictions against our goods. Peace trade is reviving. There is still some unemployment, but the crisis is over and the situation is steadily improving.

American Branch Factories Build Up Canada

OVER 500 branches of United States manufacturing concerns have crossed the boundary and located in Canada. If there had been no tariff between Canada and the United States, it would not have been necessary for them to come to Canada. Their huge parent plants in the United States could have dumped their surplus goods into this country.

But even our moderate tariff, averaging 21⅗ per cent. on dutiable goods (exclusive of the special war revenue tariff) prevented this to some extent.

As one American who has become a Canadian says:

"We found that we had to step over the tariff wall and bring our plants with us."

These 500 branches of American factories employ about 80,000 people in Canada, to whom they pay annually in wages about $80,000,000.

If each employee has three dependents, on the average, nearly a quarter of a million people are supported by these factories. It is estimated that their annual expenditure, chiefly in Canada, for raw material is near $200,000,000.

If our tariff wall is broken down or abolished, will any more branches of American factories be located in Canada, and will all those who are here now remain?

Canada—A Nation or an Adjunct?

AS the people of Canada are being urged to break down the tariff wall between this country and the United States by reviving the Reciprocity Agreement of 1911, and by sweeping tariff reductions preliminary to free trade, they should consider the following correspondence, which was written during the progress of the reciprocity negotiations of 1911 and published by Ex-President Taft on the 25th of April, 1912, after the famous Taft-Roosevelt quarrel:—

Ex-President Taft to the late Ex-President Roosevelt: —"The amount of Canadian products we would take would produce a current of business between Western Canada and the United States that would make Canada only an adjunct of the United States. It would transfer all their important business to Chicago and New York, with their bank credits and everything else, and it would increase greatly the demand of Canada for our manufactures. I see this is an argument made against reciprocity in Canada, and I think it is a good one."

From the late Ex-President Roosevelt's reply to Ex-President Taft: "It seems to me that what you propose to do with Canada is admirable from every standpoint.

I firmly believe in free trade with Canada for both economic and political reasons."

Sixty thousand Canadian soldiers died and two hundred thousand were wounded in a war which was begun to protect small nations.

Canada emerged from the war, standing high among the nations. Is she now to become an adjunct?

Revision of the Tariff

AS there have been many changes in the national life of Canada, owing to the war and other causes, since the tariff was revised in 1907, in some particulars the present tariff is not suited to the present conditions.

But as every tariff alteration affects not only its own industry, but a chain of industries and all the wholesalers, retailers, bankers, farmers, etc., connected with such industries, is it not clear that the tariff should be overhauled, item by item, and after a careful study of each industry?

Before even this is done the soldiers should be returned to civil life and the country established on a peace basis.

Then the tariff should be revised and a new tariff framed to suit, not the manufacturers only, nor the farmers only, but the whole country.

Dangerous Insurance Legislation

THE danger of amateur interference in legislation dealing with technical subjects was never more clearly demonstrated than by an amendment to the Dominion Insurance Act which has been suggested by the Dominion Superintendent of Insurance. Among other things it provides:

"That the policy shall expire and cease to be in force at the expiration of ten days from the date the insurance becomes effective unless there has been filed before the said date or unless there is filed within the said period, with the company or with a duly authorized agent thereof, a written application for such policy in the form H in the schedule of this Act, or in such other form as may be approved by the Superintendent, such application to be signed by the assured or other person having an insurable interest in the property or by a person, other than the company, agent or broker from or through whom the policy is obtained duly authorized thereto by the assured or such other person having an insurable interest as aforesaid;

"That if the said application is not so filed the only liability of the company, arising after the expiration of said period, in respect of the policy shall be for the return of the premium paid after deducting the company's usual rate for the period for which the policy was in force;

"That any agent representing the company, or any inspector acting for or on behalf of the company, recommends any change or alteration in any property insured by the company for the purpose of rendering such property less liable to damage by fire, and if the company concurs in such recommendation and notifies the insured of such recommendation and concurrence, and if the insured fails within a reasonable time to comply with such recommendation the company shall report such recommendation and the failure of the insured to comply therewith to the Superintendent."

The form H referred to is not before us but it is immaterial since the amendment would allow the Superintendent to vary it at any time according to his own caprice. Mr. Finlayson appears to think that this scheme would form a very important factor in the prevention of fires. It will not be difficult, however, for any manufacturer to realize what the result of such an enactment would be. It would mean chaos. The validity of every fire insurance policy would depend entirely on the accuracy of a statement written and signed by the assured. A mistake in compiling the statement, a slight change in the risk or possibly even in values after the policy was issued, the delay of a day or two in completing or filing the statement, would mean that the policy would become null and void and the assured might, and in many cases would, find himself entirely uninsured because of the neglect or carelessness of a subordinate to whom the task of completing the statement was entrusted. It will be noted that the assured himself must make the statement, he cannot entrust it to his broker or agent. In any case, it is doubtful whether any broker would be sufficiently reckless to undertake the responsibility of compiling the statement.

The Superintendent has apparently set his heart on this amendment to such an extent that he has stated his intention of communicating with the various provincial governments with a view to persuading them to adopt the provision in their own insurance laws. The suggested amendment has already aroused widespread alarm, and probably the energetic action which is being taken by many public bodies will result in it being withdrawn. It is impossible, however, to overestimate the danger which it involves and protests should come from every section of the community.

Who Needs Protection?

CANADIAN manufacturers are often misrepresented as a small group of selfish men who supported a tariff solely for their own benefit.

The following need a protective tariff just as much as the manufacturer:—

1. Seven hundred thousand men and women work in Canadian factories.
2. The wholesalers and retailers and their employees, who distribute the products of the Canadian factories.
3. The farmers who sell 80 per cent. of everything they produce in Canada.
4. The railway and steamship companies and their employees who carry Canadian goods.
5. The bankers, brokers, and commission agents, and their employees, who finance Canadian industry.
6. The innumerable investors who own stock in Canadian manufacturing concerns, but who are in no sense manufacturers.
7. All others—doctors, lawyers, insurance men, publishers, etc.—who make their living, directly or indirectly, from industrial concerns and the industrial population.

Canada has not a protective tariff because a few manufacturers want it: Canada has a protective tariff because the nation wants it. The nation has so expressed itself at the polls time after time, under both Conservative and Liberal Governments, during the last forty years.

Is Canada alone to ignore the great lesson taught by the war—that a nation must maintain within its own boundaries all the elements of self-protection and self-support?

News and Views of the Association

There will be found each month in this department a record of the various activities of the Canadian Manufacturers Association during the preceding month. The information is supplied to INDUSTRIAL CANADA officially, and all members of the Association are urged to acquire the habit of reading and checking over the contents of the department carefully in order to keep themselves posted on the work of the Association

Annual Meeting

The Annual Meeting of the Association will be held this year at the King Edward Hotel, Toronto, on June 10th, 11th and 12th. This decision was reached at the Executive Council meeting in Montreal on March 27th, and instructions were issued that all necessary arrangements be made.

Applications and Resignations

Council accepted 37 applications for membership, and 11 applications for resignation at its last meeting. All the resignations except one were from firms which had either amalgamated with other firms, or had ceased manufacturing operations.

Made-in-Canada Campaign

Council decided to begin another Made-in-Canada Campaign as soon as possible. It was urged that the best way to remedy unemployment at the present time was to persuade the people of Canada to buy Canadian goods, and thus keep work in our own country.

Clay Products and Stone Section

A number of manufacturers of clay and stone products met at the Head Office of the Association on March 20th and completed their preliminary organization. The Executive Council has approved their application to form a Clay Products and Stone Section of the Association, and a further organization meeting will be held presently.

Patents and Copyrights

A considerable volume of correspondence, including many valuable suggestions, have been received by the Secretary in answer to a recent circular issued to members, inviting their views on the proposed Patent Act, which have been transmitted to the officers of the Patent Office, and arrangements are being made for a conference in Ottawa on the subject on an early date.

The Whitley Report

For some time the manufacturers of Canada have been taking considerable interest in the Whitley Report, which advocates the setting up of Joint Councils, on which both employers and employees are represented. The chief difficulty in applying the Whitley Report in Canada lies in the great difference between Canadian and British conditions.

British industry is highly specialized and centralized in certain areas. For example, the woollen mills are in Yorkshire, the cotton mills are in Lancashire, and the linen mills are in Belfast. As a result, it is easy to call conferences of representatives of an entire industry. There is no such condition as this in Canada. It is most difficult, owing to the great distances, to assemble all those interested in any industry.

Nevertheless, the Whitley Report and similar industrial plans are receiving attention from the manufacturers of Canada at present.

Dominion Bankruptcy Act

The Committee gave further consideration to the question of supervising proper control over the discharge of the trustee in bankruptcy by way of ensuring that the estates are properly administered and distributed. Counsel was, accordingly, instructed to appear before the Parliamentary Committee, when the matter is taken up, to see that a satisfactory plan to this end is worked out, the Committee desiring to make it clear that they do not oppose the Bill, but wish to see it enacted in the best form possible.

Legal Department

Mr. H. Macdonald was appointed Secretary of the Legal Department by the Executive Committee at its meeting in Montreal on March 27th. The appointment was confirmed by the Executive Council. Mr. Macdonald has been acting Secretary of the Toronto Branch and Assistant Secretary of the Association since 1915. He will continue to be Secretary of the Toronto Branch.

French Exhibition Train

The proposal to send an exhibition train to France and other European countries for the purpose of advertising and selling Canadian-made goods, has been held in abeyance for the present, owing to the import restrictions imposed by the various countries in Europe. The matter has not been dropped, however, and may be revived when the situation warrants such action.

100 per Cent. Membership Campaign

The manufacturers of Peterborough made a record in their membership campaign, the slogan of which was "100 per cent. for Peterborough." Under the leadership of Mr. Breyfogle, a number of manufacturers of Peterborough determined that every manufacturer in Peterborough, who was eligible, should be induced to join the Canadian Manufacturers Association.

They formed a committee, divided the city into areas, and made a systematic canvas lasting three days, during which they gave all their time to the work of getting new members. At the end of the third day, there was not one manufacturer left in Peterborough who had not signed an application for membership in the Association.

This is probably the most critical time in the history of Canadian industry. The tariff question is unsettled,

labor questions are numerous and difficult and the problem of export trade is as difficult as ever.

This Association has need of the help of every manufacturer. A small percentage of eligible Canadian manufacturers are not members of this Association. There are among them men who have ideas which could be put into effect through co-operation, and which might be of the greatest possible assistance in the solution of these difficult matters.

The Executive Council would like to see this 100 per cent. campaign started in every industrial community with a purpose of making a determined effort to get into the membership of the Association every manufacturer who is eligible.

Workmen's Compensation

The Legislation Committee gave consideration to a proposed bill to amend the Workmen's Compensation Act, Manitoba, dealing with appeals from the decisions of the Board upon questions of jurisdiction, power to inaugurate a State insurance scheme, the publication of detailed accounts in the annual reports of the Board, etc.

The more general application of the various Provincial Workmen's Compensation Acts increasingly demand greater similarity in statutory form and practice. The Committee, accordingly, directed the General Manager to use his best endeavors with a view to co-ordinate practice in the various provinces looking to a uniform policy of the Association.

Organization and Service

The following changes in organization and service have been authorized by the Executive Council of the Association:

General Manager.—Mr. J. E. Walsh, who has been Manager of the Transportation Department since 1907, has been appointed General Manager with supervision, under the direction of the Executive Committee, over all Departments, Branches and Sections of the Association.

Ottawa Office.—An office with board room suitable for meetings has been opened at 217 Booth Building, Ottawa, in charge of Mr. G. M. Murray, former General Secretary, assisted by Mr. E. Blake Robertson. Members are invited to consult this office freely when they desire information obtainable only in Ottawa. Mr. Murray and Mr. Robertson will also be glad to render assistance, where possible, to any members wishing to make representations to governmental departments or commissions. The Ottawa office has been a long-felt want, and its value has already been proven by the number who have availed themselves of the service. It is not intended that the Ottawa office shall supersede the service now being rendered by the different departments at the Head Office of the Association, in regard to tariff, transportation, commercial intelligence, insurance and legal matters; to which all correspondence in regard to such matters should be addressed.

General Secretary.—Mr. J. T. Stirrett, who has been Editor of INDUSTRIAL CANADA since 1912, has been appointed General Secretary, in charge of all secretarial work of the Association.

Transportation Department.—The Transportation Department has been enlarged, and Mr. S. B. Brown has been appointed Assistant Manager. Mr. Walsh will continue to exercise special spervision over the Department.

Tariff Department.—The engagement of an assistant to the Manager of the Tariff Department, Mr. J. R. K. Bristol, has been authorized, to provide for the great increase in the work of this Department.

Commercial Intelligence Department.—The staff of this Department, which is under the management of Mr. A. Marshall, is being enlarged to provide for the publication of a new Canadian Trade Index during the coming summer.

Legal Department.—Authority has been given to reorganize the Legal Department along similar lines to those on which it was established some few years ago. All enquiries that should properly come before this Department should be addressed to Mr. H. Macdonald, Secretary.

Trade Sections Department.—As industry is now operating to a very much larger extent in groups, a new department has been authorized, and Mr. J. M. McIntosh, who has been Assistant Secretary and Secretary of Toronto Branch since 1912, has been appointed Manager, and will devote his time to the formation of new groups and sections. He will also deal with the various problems in which such organizations are vitally interested.

Ontario and Quebec Divisions

The proposal of the Membership Committee to form Quebec and Ontario Divisions of the Association was considered by the Executive Council at its meeting in Montreal on March 27th, approved, and referred to the Annual Meeting for final consideration. The Membership Committee felt that their efforts to secure new members would be assisted by the stimulation of interest in the affairs and policies of the Association in local industrial centres, thus preventing undue concentration of interest and work in large branches such as Montreal, Toronto, and Hamilton.

Before the matter was brought up in the Executive Council, it was fully considered by the Toronto and Montreal Branches.

On March 20th a conference of manufacturers from all parts of Ontario was held in Toronto, and the following resolution was passed unanimously:

That this meeting, having regard to the problem of increasing the membership of the Association, recommend to the Executive Committee the advisability of creating a provincial organization, to be known as the Ontario Division of the Association, to include present branches or sub-branches in Toronto, Hamilton, Niagara Falls and Brantford, and any additional branches which may subsequently be organized, to deal with matters of provincial application, leaving to the local organizations such matters as affect them locally, and that the by-laws of the Association be amended and enlarged accordingly.

The Montreal Branch at its meeting on March 10th placed itself on record as cordially approving the proposal and indicating willingness to co-operate.

The organization suggested is practically in effect in the Maritime Provinces Branch, the Prairie Provinces Branch, and the British Columbia Branch. If the Annual Meeting approves, the Association will be subdivided as follows:

Maritime Provinces Division.
Quebec Division.
Ontario Division.
Prairie Provinces Division.
British Columbia Division.

The present Branches in Toronto, Hamilton, Niagara Falls and Brantford, for example, will become Branches of the Ontario Division.

The present Branches in Montreal, Sherbrooke and Quebec will become Branches of the Quebec Division. Consequently, all the Branches in a divisional area will co-operate in matters affecting their area, but not affecting the national interests of manufacturers. Council did not contemplate increasing the staff to cover these changes, as the Secretary of the Montreal Branch can act as Secretary of the Quebec Division, and the Toronto Branch Secretary can act as Secretary of the Ontario Division, in the same way that the Secretaries of the Maritime Provinces Branch, the Prairie Provinces Branch and the British Columbia Branch now perform the secretarial duties not only in the locality in which they are located, but for the whole area covered by their Branch.

Activities of the Toronto Branch

By H. MACDONALD
Secretary, Toronto Branch

THE permanent standing committee, composed of the C.M.A. and the G.W.V.A. representatives has demonstrated to a remarkable degree the value of joint counsel. With respect to employment, the reversal of what was only a few weeks ago an alarming situation, speaks eloquently for the settlement of reconstruction and labor problems by co-operation. Scarcely a month ago, officers of the C.M.A. and officials of the Veterans' organization were extremely uneasy over the employment situation. Hundreds of returned men were said to be idle in Toronto, and many of them burning at the thought that aliens were filling positions needed for the returned soldier.

It was, at this stage of the problem, that very close co-operation was inaugurated between the Toronto Branch of the C.M.A. and the G.W.V.A. Frequent joint meetings were held, in which the Board of Trade and other representative organizations have been represented. An industrial census of the city was taken by the Toronto Branch Executive and a keener interest in the welfare of the returned men applying for positions, was immediately felt. The information from the industrial census was placed at the disposal of Captain H. S. Cleverley, of the Information Branch of the D.S.C.R., and the result was a triple co-operation that has, for the present, very nearly solved the unemployment problem, as it affects returned men. Of course, the unemployment is not entirely eliminated, as there are, as might be expected, veterans who cannot take positions in factories and yet who are out of work. Above all, a spirit of mutual confidence and respect has been engendered which will prove, at once, a source of satisfaction to employers and employed alike, and tend to strengthen, as nothing else could, a healthy sentiment of co-operation and optimism.

Visiting Members

The Toronto Branch Executive have resolved that visiting members attending meetings in Toronto of the Executive Council hereafter shall be entertained at luncheon by the Toronto Branch Executive.

Annual Meeting

The Executive Committee have resolved that the annual meeting of the Branch will be held in the Board of Trade Assembly Hall, on Thursday, the 15th of May, commencing at 2 p.m., the following committee being appointed to make all necessary arrangements: Messrs. Thomas Roden (chairman), W. C. Coulter and Geo. Brigden.

Citizen's Repatriation League

A joint meeting of the members of Toronto Branch and of the Toronto Board of Trade was held in the Assembly Room of the Board of Trade on March 6th, when an address on "Repatriation" was delivered by Dr. A. S. Grant, who has recently returned from visiting the Canadian troops in France, Belgium and Germany. Dr. Grant stated that what this war had brought about is the consolidation of the British Empire, in which every colony of it had its share—what Germany had sought to destroy, she had built up stronger. The colonies had a better understanding with the mother country and the Anglo-Saxon races are better acquainted and will stand up and see that democracy is safe for the world.

Emphasizing the urgency of a better educational system, Dr. Grant stated that it was the State's duty to see that our sons, after they are finished with the services they have rendered, are properly trained and educated for their life's work.

Welfare Work

A conference of exceptional interest was held in the Association's board-room on March 18th, when Mr. S. J. Williams, of Kitchener, addressed a representative meeting of manufacturers on "Welfare" as the solution of labor unrest. Mr. Williams' address made a deep impression on the meeting, his "Welfare" system showing: (1) a remarkable spirit of unity and co-operation between employer and employee; (2) a high standard of comfort and independence of the workers; (3) an elevated moral and ethical standard in the factory, extending to city life, besides which the system thus developed has proved a material aid to the industry and has been financially profitable.

The following committee was appointed through which information bearing on "Welfare" work may be spread amongst the manufacturers, namely: Messrs. Roden, Harding, Monypenny and Telfer, with power to add.

Educational Committee

At a meeting of Toronto Branch Executive held on 18th of March, Mr. Thomas Roden presiding, a report was submitted by Dr. McKay, Principal Central Technical School, of the result of last year's scholarship scheme. Fifty-one scholarships were presented to an equal number of day school pupils of the Central Technical School. As far as possible, the special classes in which the scholarships are awarded are industrial, being designed to give definite practical instruction in the closely related industries. Dr. McKay stated that from both regular and special day classes there is a constant stream of young people entering industrial life, with an ever-increasing equipment of mental culture and practical efficiency, and that the scholarships given by the manufacturers are a strong factor in helping the school to hold young people until they have secured an adequate preparation for life.

An equally gratifying report was given of the work of the evening school courses, the regularity of attendance of the pupils being an evidence of ambition worthy of encouragement.

The Committee unanimously agreed to appeal to the members of the Branch for a renewal of their awards. The scholarships are of the amount of $25 each and are awarded in three instalments, upon the student passing the prescribed examination. It was also agreed to renew the appropriation for prizes in connection with the evening school classes.

In order that the manufacturers may learn, at first hand, the character of the work the school is performing, the Secretary was instructed to arrange with the Principal for inspection visits in convenient groups, during the evenings.

City Government and Industries

A deputation of the Toronto Branch Executive of the C.M.A. waited on the Board of Control on 7th of March to record their objection against the city's interference between Gutta Percha & Rubber, Limited, and the residents of West Lodge Avenue, who complained of the vibration of machinery on the plant.

It appeared that this factory was started thirty-five years ago by building on a railway siding, the district being thus given the character of an industrial area, the residential

part of the district drifting in gradually in the full knowledge of its industrial character.

Mr. Thomas Roden, acting chairman of Toronto Branch, who was the spokesman of the deputation, stated that all the manufacturers of the city were concerned over the unwarranted action of the civic authorities in summoning this company to the Police Court for maintaining an alleged nuisance, without even waiting for the report of the Industrial Commissioner, which the civic authorities had, themselves, ordered.

The complaint against the company, on coming before Judge Kingsford in the Police Court, was formally dismissed. The effect, however, of the action of the civic authorities was the receipt by the company of invitations from outside municipalities to leave their location in the city and to transfer their factories to areas outside the city.

Recent Activities of the Maritime Branch

By H. R. THOMPSON
Secretary, Maritime Branch

A NOVA SCOTIA Federation of Labor was lately organized at a Conference of 60 accredited delegates representing organized labor throughout Nova Scotia. The meetings were held in the Board of Trade rooms at Halifax and the delegates were in session about three days. The reforms, directly affecting the manufacturers, demanded by the Federation are briefly as follows:

"Placing the Union Label on manufactured goods, where such a step is feasible.

"Compulsory free education, free text books and school utensils up to the 8th grade, and in no case shall any child be employed under the age of 16 years, in any industry in the province.

"That Coolie and Asiatic labor be prohibited from coming into the province, and those of Asiatic nationality be at once deported from the province.

"A forty-four hour week for all industrial workers.

"Where women are employed, in industrial works, they shall be paid equal rates with men."

Delegation Waited on Premier Murray

A delegation representing the Maritime Branch, C.M.A., waited on Premier Murray to discuss the above proposals and were given to understand that no definite action had yet been decided on. The deputation was assured that those concerned will be given a further opportunity to present their views before definite action is decided on.

Proposed Amendments to Nova Scotia Workmen's Compensation Act

It has been intimated that a bill providing for first aid, medical attention and hospital treatment, under the Workmen's Compensation Act, the cost to be paid from the accident funds, will be introduced during the present session of the Local Legislature.

During the late Conference in Halifax, the Amalgamated Mine-Workers passed a resolution referring to the amount of compensation obtainable, under the Compensation Act, by an employee who has been injured. The law now privides that in case of accident 55 per cent. of wages up to $1,200 a year shall be paid during the period of disability. The miners ask that the rate be made 65 per cent., and that the limit of $1,200 be removed. They want the rate to be made 65 per cent. of his wages no matter what his pay may be.

Accident Prevention

During the past year, the Maritime Branch has been carrying on an educational campaign in an endeavor to get the employers, under the Compensation Act, sufficiently interested to attend a meeting to organize an Accident Prevention Association. The time now seems ripe in Nova Scotia for such a move and a meeting is being called at Halifax on April 2nd. The consensus of opinion is, that only one Association should be organized in Nova Scotia, and that the Constitution provide for the formation of "Sections" or "Committees" to deal with the problems which are peculiar to and concern the particular classes or groups under the Act. It is also recommended that the Association be so constituted that such a committee or section shall act as a body representative of its group of industries and capable of appearing before the Compensation Board, the courts, or other bodies, in that capacity.

Maritime Canned Fish Section

Representations have been made repeatedly by the Section, to the Department of Fisheries, that the fishery regulations were not being properly enforced, and in some cases it looked as if discrimination was being shown. A particular investigation was asked for, and held without our knowledge, the result of which was unsatisfactory to the Executive Committee. A further investigation, under oath, was asked for and a date set. Before the time arrived, however, the Fishery Overseer concerned sent a written acknowledgment of the irregularities to the Secretary. Our action in forcing the issue, and the illustration that our contentions were well founded, will no doubt tend toward a better enforcement of the regulations hereafter.

If the lobster industry is to be permanently preserved, the measures adopted toward the conservation will have to be strictly observed. In this connection the Secretary was instructed to send a circular letter to all those engaged in the industry, informing them that this "Section" will hereafter endeavor to have action taken in all known cases of infringement. As a further means toward the enforcement of the regulations, we have recommended to the Department that a *Naval Police* be organized, the members of which should be uniformed and disciplined and receive their appointment on account of qualifications and not from political influence as heretofore.

Maritime Wooden Box and Box Shook Section

A meeting of the Maritime wooden box and box shook manufacturers was held on March 20th in the offices of the Maritime Branch, at Amherst. After a discussion of the general situation as regards this branch of industry, it was decided that much might be accomplished for its welfare by the formation of a "Section" under the C.M.A. Tentative Constitution and By-laws were discussed and adopted. Mr. Alex. Wilson, of the Wilson Box Company of St. John, was appointed chairman; Mr. W. H. Farnham, of the Canadian Woodworking Co., Yarmouth, was chosen as vice-chairman. The Secretary of the Maritime Branch was requested to act as Secretary for the "Section." These officers, with Mr. J. H. Irving, of Buctouche; Mr. J. L. Haley, of St. Stephen, and

Mr. W. D. Murray, of Hantsport, will constitute the Executive Committee. The objects of the "Section" will be to devise ways and means of cutting costs, saving wastes, and spying out new markets, and to consider and act upon all matters pertaining to the general welfare of this branch of industry. A resolution was passed opposing the proposed increase in freight rates on nailed-up boxes. The present rate on these boxes is about double the rate on barrels, and instead of an increase, it was considered a reduction should be made. The next meeting is to be called in the month of May, on the day previous to the annual meeting. In the meantime an effort is to be made by a Committee, to secure applications, for membership in the C.M.A., from the wooden box and box shook manufacturers who are not now members of the Association.

New Brunswick Compensation Act

At a joint meeting of the Moncton labor organizations, a resolution was adopted favoring the following amendments to the New Brunswick Workmen's Compensation Act:

First. In case of injury to workmen (*lasting more or less than seven days*), hospital, surgical, medical and skilled nursing services shall be provided, which in case of industries under Part 1 shall be paid out of the accident fund; in case of industries under Part 2 the employer shall be individually liable to pay costs fixed by the board. *Second.* In places where employers have more than fifteen workmen usually employed a "First-Aid Kit" will be kept in charge of some competent person who can render necessary aid when needed. *Third.* Industries employing *150 or more employees, a "First-Aid Room"* with the necessary equipment and supplies, in charge of a nurse or qualified competent person must be provided by employers.

The stand we have taken regarding the first amendment is that the Compensation Board has not yet had sufficient time to properly carry out the provisions of the original Act, and that if additional responsibilities are immediately saddled upon it, some feature will not receive the necessary attention and possibly the Act brought into general disrepute.

As regards the third proposal, although not opposed to compulsory first-aid, we have pointed out that an industry with 150 employees would not have an average of one accident each day. It would therefore seem that the expense, of providing a specially equipped room in charge of a nurse or other competent person, would be an unnecessary burden on an industry of this size, particularly in the centres where a doctor and hospital services are readily obtainable. We have suggested that the limit, of 150 employees, be raised.

The Secretary had the pleasure of being invited to attend a meeting of the Moncton employers, called to discuss these proposed amendments. After exhaustive discussion a resolution was passed urging that no amendment, enlarging the scope of the Act, be made at present nor until the Board and all parties concerned have had a longer working experience and become more familiar with its provisions.

Activities of the Montreal Branch

By J. M. MACINTOSH
Acting Secretary, Montreal Branch

THE Montreal Branch Executive Committee held its regular monthly meeting on Wednesday, March 12th last. The agenda, although lengthy, was disposed of quickly.

In almost the time it takes to tell it, the chairman, Mr. C. Howard Smith, was nominated as the representative of the Branch on the Executive Committee of the Repatriation League; Messrs. Michael Hirsch and Eugene Tarte as representatives to the General Council of the City Improvement League; cordial approval was expressed of the Membership Committee's proposal relative to the organization of provincial and local branches; greetings were ordered to be sent to the newly reorganized Sherbrooks Branch, together with a standing invitation to it to send a representative as a guest to meetings of the Montreal Executive Committee.

The Repatriation League is now launched and settled down to business. It is an organization of the most prominent of the Montreal citizens who are determined to see that faith is kept with the soldiers now returning. It is estimated that from thirty to forty thousand men will be demobilized in Montreal and a formidable proportion of these will be seeking employment. An appeal is made to all employers of labor that every effort consistent with the efficient carrying on of business should be made to provide positions for returned men. It should not be forgotten, too, that where the returned soldier, in some isolated cases, may not measure up to the desired standard of efficiency, he is entitled to sympathetic treatment. War organization took him as it found him and by training made him an instrument of victory. Industry must take him back as it now finds him, and by training help him to readapt himself to the arts of peace.

Acts of Quebec Legislature

The Quebec Legislature has completed its labors. Acts have been passed incorporating technical schools at Sherbrooke, Hull, and St. Hyacinthe. The corporations of these schools will consist of five members, two to be appointed by the City Council and three by the Lieut.-Governor in Council. Representations have been made which it is hoped will lead to the appointment of manufacturers as members of these corporations.

An Act has been passed giving power to appoint a Commission consisting of three members to investigate conditions under which women are employed in industrial establishments. It may examine books and exact information, and if conditions warrant it may convene a conference of persons, half of whom may be selected by employers and half by employees, one of the members of the Commission presiding. This conference may determine minimum wages and enact rules, but its decisions will be subject to amendment or rejection by the Commission.

Legislation was also enacted prohibiting the employment in any industry of any boy or girl less than 16 years of age, who is unable to write fluently and easily.

An Act to revise the procedure respecting incorporation of companies was introduced, but stands over until next session. Its purport is to adapt existing legislation to British precedents.

Board of Trade's Position

The Montreal Board of Trade has placed itself on record in a strong resolution which urges the stabilizing and stimulation of commercial enterprises during the period of reconstruction by refraining from readjustments of the fiscal policy of the Dominion until definite tariff policies are adopted throughout the British Empire, and that during the period of reconstruction some degree of control over imports by license or otherwise should be exercised by the Government. The terms of the resolution are as follows:

"Whereas, at this time when our fighting forces are returning from overseas in large numbers and they, together with munition workers, are seeking other employment, busi-

ness must be stimulated to create confidence and stability in commercial enterprises, thereby providing for the maximum employment of labor;

"Whereas, values of all commodities are in process of readjustment, and any changes in the present fiscal policy would tend to delay the return to normal conditions, retard initiative and create uncertainty;

"Whereas, because of the heavy adverse balance of trade as between Canada and the United States, as evidenced by the continued high premium of over two per cent. for the purchase of New York funds, importations from the United States should be kept at a minimum, more especially of such commodities as are made in Canada or as are non-essential;

"Whereas, Great Britain, France and other European countries have seen fit to restrict imports and thereby conserve their own resources and provide employment for their own people;

"Whereas, the burden of taxation must be borne by all classes, and not be sectional, it is therefore necessary that all classes, including farmers, manufacturers, merchants and workers should be fully employed, and thereby make Canada more than ever self contained and less reliant upon imports from other countries;

"Therefore resolved: That the Council of the Montreal Board of Trade is of the opinion that until a definite tariff policy is adopted for the British Empire, the Dominion Government should exercise, during the period of reconstruction, some degree of special control over all imports, either by a license system or otherwise."

Workmen's Compensation in Manitoba and Alberta

By G. E. CARPENTER
Secretary, Prairie Provinces Branch

FOLLOWING an attempt made by the Casualty Insurance Companies, writing workmen's compensation insurance in Manitoba, for an increase in premium rates, averaging 86 per cent., hearings were held by the Workmen's Compensation Board for the purpose of ascertaining what increase, if any, should be authorized in premium rates. The Board retained the services of an acturial compensation insurance expert from New York to advise it upon the application made by the insurance companies. Upon examination, by the solicitor of the Prairie Provinces Branch, Mr. J. B. Hugg, K.C., the expert stated that he considered that there was sufficient spread of risk in Manitoba to warrant treating it as a whole for insurance purposes, but that all employers and not manufacturers alone should be brought under the Act to make it a success. The expert also agreed that a merit rating system under which refund of part of premium paid would be made for good experiences and additional amounts collected where the experience of the risk was bad. while he stated that this was desirable he added that it was very expensive to apply satisfactorily.

No decision has as yet been rendered by the Workmen's Compensation Board as to premium rates, but it is generally understood that should the Board not authorize increases satisfactory to the Insuring Companies that the latter may withdraw from the Manitoba field.

At the recent session of the Manitoba Legislature the Government took power to bring into effect Provincial Compensation Insurance by the Government, largely based upon the British Columbia Act.

When this bill was introduced, a Committee of the Branch interviewed the Government and suggested that while Provincial Insurance might be more satisfactory to employers, that it did not consider it advisable to try out any new scheme under present abnormal conditions, if the Insuring Companies would continue to carry the risk at reasonable rates.

When the enabling bill was before the Law Amendments Committee of the Legislature the Committee of the Branch arranged the inclusion of a clause providing that full particulars of the amounts collected and disbursed in each of the various groups should be published in the annual reports of the Board, so that the information would be available to all interested parties.

Among the suggestions from the Compensation Board embodied in the bill before the Law Amendments Committee for consideration was a clause doing away with the right of appeal from the decision of the Board upon a question of jurisdiction. This was opposed strongly by the larger employers of the Province. The clause in the question was not included.

A bill providing for a similar change in the Alberta Workmen's Compensation Act is now before the Legislature of that Province. Interested members have been fully advised of the effect of the proposed changes.

Manitoba Labor Legislation, 1919

By J. B. HUGG, K.C.
Counsel for the Prairie Provinces Branch, C.M.A.

THE Manitoba Legislature consists of forty-eight members of whom six represent the City of Winnipeg. Four of the Winnipeg members, one of them a leading member of the Government, and the member for Assiniboia represent constituencies in which the labor vote predominates heavily. Two of the Winnipeg members represent a constituency in which the commercial and financial vote predominates, and all the rest of the members represent the farming community.

The labor movement in Manitoba is centred in Winnipeg. Thousands of workmen of British or native Canadian origin, loyal to the constitutional methods of pre-war Trades Unionism, enlisted for service in the great war, and during their absence the Winnipeg unions were filled up by and finally came under the control of unskilled workmen of alien origin, permeated with the socialistic and anarchistic theories of central and eastern Europe.

The Union leaders are now violent extremists who aim to make the Trades and Labor Council of Winnipeg, formerly a sane body working by constitutional means to better the condition of workmen, into a true Russian Soviet and propose to prescribe the conditions under which industry in Winnipeg may be carried on.

In 1918 this would-be Soviet undertook to dictate terms of a most drastic nature to the manufacturers in the metal trades in Winnipeg. The resulting conflict became so serious that the Dominion Government appointed a Royal Commission to investigate. After several weeks the Commission unanimously reported that the demands of the unions were not justified and that they were merely seeking to force a closed shop on a class of employers who had always maintained an open shop. This report was resented by the would-be soviet and violence was resorted to in several shops,

which was finally restrained by an injunction granted by the Court of King's Bench.

The Unions then assumed to call a general strike to force the Court which granted the injunction to dissolve it, but this attempt failed, thanks to the good sense of many of the rank and file in the labor movement, and the strikers ultimately returned to work on terms originally offered by their employers.

The Trades and Labor Council also made an attempt to form an aliance with the Grain Growers' Association, hoping thus to win the support of rural members of the Legislature.

Anti-Injunction Law Demanded

When the Legislature assembled in 1919, the Trades and Labor Council submitted a demand to the Government for an anti-injunction law complaining bitterly of the action of the Manitoba courts in 1918 and in earlier years.

The labor demands immediately secured a certain amount of sympathy and support because of the constitution of the Assembly, and the manufacturers were asked if they would agree to the passage of an anti-injunction law. The Association in reply demanded that the full protection of the courts in all cases where they were threatened with irreparable damage from unlawful acts on the part of unions carrying on a strike, should not be in any way limited or restricted.

A deadlock having been reached the Government hatched out a compromise bill which created a joint council of industry and gave it power to bring into effect after investigation and anti-injunction law which was embodied as a schedule to the bill.

This dodging of the issue gave satisfaction to neither side. The labor leaders invaded the Legislature in a body and violently denounced the Government for not giving an anti-injunction law and declared to the Premier that they resented the subterfuge which had been adopted. They stated there could be no peace between capital and labor until capital was abolished and the workers operated all plants for their own benefit. They further declared that they would not submit their demands to the decision of any Court or any Board. They claimed labor was always right as it decided for itself what was right, and they refused to have anything to do with any Board or law excepting a law which freed them from the jurisdiction of civil courts in labor disputes.

The manufacturers also opposed the proposal that a Board should have power to deprive them of access to civil courts where unlawful acts were threatened or done by striking unions, stating their willingness to abide by duly constituted authority and demanding the protection of the law and of the officers of justice. They pointed out that an anti-injunction law would in reality place the unions above the law and compel employers to organize vigilance committees and private police squads to protect themselves. They called upon the Government to assert the authority of the State and to repress all unlawfulness no matter by whom committed.

Government Enacts Measure

Notwithstanding the representations made by both sides with great force and earnestness, the Government's bill was finally passed and will become law on proclamation.

The bill in addition to the objectionable anti-injunction feature conferred power on the proposed Joint Council of Industry to investigate with compulsory powers all labor disputes and directed it continuously to investigate and report on the cost of living, the numbers of workmen employed and unemployed, the conditions under which workmen live, all complaints as to oppression of workmen, violation of labor laws, and finally enabled it to act as a board of arbitration by consent.

The Act has not yet been proclaimed. Its proclamation will give rise to an interesting and difficult situation.

Safety Congress for the Dominion

First Meeting of the Recently-Organized National Safety League to be Held this Month in Toronto

THE first annual congress of the Canadian National Safety League will be held this month in Toronto. The League, it might be explained, is the logical outgrowth of the work done by the Ontario Safety League. The national organization does not in any way supersede the provincial league, but is designed to spread safety propaganda throughout the Dominion until such time as each province has its own league. The reasonable expectation is that such provincial organizations will become members of the National League. The Ontario Safety League and the Manitoba Government (Labor Department) have already become members of the Canadian National Safety League, and their fees have provided the initial expenditures in connection with securing the charter, etc.

The Canadian National Safety League is authorized to carry on safety work in the Dominion of Canada under a special charter from the Federal Government, dated 25th November, 1918. The objects of the Dominion-wide league as set forth in the charter are:

To safeguard and protect the public, especially children, from the dangers of automobiles, railroads, street railways, and all other forms of vehicular traffic on the public highways in the Dominion of Canada.

To educate the public through schools, churches, literature and all channels of publicity upon matters pertinent to public safety.

To minimize the injury and killing of persons employed in stores, factories, workshops, and all departments of industrial and mercantile activity, by instilling into the minds of employer and employee the full meaning of "SAFETY ALWAYS."

To co-operate, so far as lies in the power of the League, in preventing the useless destruction of life and property by fire.

To advocate and secure possible remedies and preventatives, and to assist in the enactment and enforcement of ordinances requisite to carry out the foregoing by means of:

(*a*) Bulletins, education, or any other method of propaganda that may from time to time be considered advisable.

(*b*) To be the clearing house of all information, bulletin service, safety films and all literature bearing on accident prevention work, issued under arrangements to the various Provincial Leagues.

The charter further states that—

The operations of the Corporation are to be carried on throughout the Dominion of Canada and elsewhere. The chief office of the said Corporation is situate at the City of Toronto, in the Province of Ontario.

At the approaching Dominion congress prominent speakers will be present and an effort will be made to show the delegates from all parts of Canada what can be accomplished through safety education. The provisional committee consists of Messrs. L. B. Howland, C. A. Campbell, Arthur Hewitt, W. J. L. McKay and J. F. H. Wyse, all of Toronto, and the head office of the national organization is in the Royal Bank Building, Toronto, with Mr. R. B. Morley, general manager.

Thousand Dollar Prize Contest

National Industrial Conference Board Offers Prize for Essay on Industrial Economics

Announcement is made by the National Industrial Conference Board, 15 Beacon Street, Boston, of a thousand-dollar prize essay contest in industrial economics. The contest is open without restriction to all persons except those who are members of or identified with the National Industrial Conference Board. There is no limit to the length of the papers, but manuscripts to be considered must be in the hands of the Board on or before July 1. Eight subjects are suggested for choice:—

1. A practicable plan for representation of workers in determining conditions of work and for prevention of industrial disputes.
2. The major causes of unemployment and how to minimize them.
3. How can efficiency of workers be so increased as to make high wage rates economically practicable?
4. Should the State interfere in the determination of wage rates?
5. Should rates of wages be definitely based on the cost of living?
6. How can present systems of wage payments be so perfected and supplemented as to be most conducive to individual efficiency and to the contentment of workers?
7. The closed union shop *versus* the open shop: their social and economic value compared.
8. Should trade unions and employers' associations be made legally responsible?

The Committee of Award is composed of: Frederick P. Fish, of Fish, Richardson & Neave, Boston, Mass., Chairman of the National Industrial Conference Board; Dr. Jacob Gould Schurman, President Cornell University, Ithaca, N. Y., and Henry R. Towne, Chairman Yale & Towne Manufacturing Co., New York City.

Extent of Canada's Automobile Industry

(By the Bureau of Statistics)

A preliminary report of the statistics relating to the automobile and other allied industries has been compiled by the Dominion Bureau of Statistics, which covers the operations of establishments engaged in the manufacture of: (1) automobiles, (2) automobile accessories, and (3) automobile repairs.

The number of establishments classed as manufacturers of automobiles in Canada in 1917 was 11, in automobile accessories 24, and in repair work 497.

The total capital invested in these industries was $35,780,677, apportioned as follows: In automobiles $28,192,858, in accessories $3,155,893, and in repair shops $4,431,926.

The number of persons employed on salaries by sex distribution was 730 males and 174 females in automobile plants, 106 males and 21 females in accessory plants, and 254 males and 48 females in auto repair shops and garages, and the total salaries paid were respectively $1,376,692 in automobile plants, $266,147 in plants making accessories, and $334,780 in repair shops.

The number employed on wages in each class and the amount paid in wages were as follows:—

	Number		
	Males.	Females.	Wages.
Automobile plants	4,852	164	$4,862,779
Accessory plants	1,405	122	1,198,596
Repair shops	1,508	34	1,200,958

The value of materials used in manufacturing and repair work in each class was (1) automobiles $35,585,820, (2 accessories $3,788,308, and (3) repairs $1,961,773.

Buying in the Home Market*

By Mrs. Ralph Smith, M.P.P.

We are glad to note that there is a revival in the minds and activities of the people to re-direct their attention to the question of greater loyalty on the part of the purchasing public. It is a fact that there is a lack of appreciation of our own goods. We could build up a most prosperous province, find employment for twice the amount of people, keep the money within our borders and have a more contented and prosperous people. There is much that we need that, because of climatic conditions, we cannot produce. That is something we willingly concede and gladly spend our money for such necessities; but what we can manufacture and produce should be purchased to the fullest extent.

We have hundreds of returned men who are anxious to get back into civil life and employment is at a premium. If we seriously turned our attention to this one question, this avenue alone would open the door to many men. Millions of our money goes out annually for what could and would be produced if we fully realized what it meant to our own self-preservation. The necessity for action on the part of the province along these lines is apparent.

Every dollar saved to the province is a dollar earned. Employment is on the lips of so many these days, and justifiably so. The situation is a serious one. We have plants with machinery and equipment to produce any quantity of goods, but such institutions are not warranted in producing any more than they are doing because we as a people do not loyally support our own industrial manufactures. Of course, we must add, price and quality being equal, and we are anxious that they should, but have we made the necessary inquiry, when purchasing our goods, whether we were buying B. C. articles or do we simply buy at random.

We spend outside of our province somewhere about forty millions. If we only kept half of that at home, we would be that much richer each year. We complain about the Oriental sending his money out of the country, and we are guilty of the same thing in another form. These things are a serious financial drain on our people, and until we realize our full duty and responsibility to each other in finding employment for our people, conserving our resources and energies, producing to the greatest possible extent and purchasing loyally as B. C. people, supporting and encouraging healthy enterprises —only then can we be called truthfully industrious, happy and prosperous.

—*Vancouver Daily Sun.*

*With "B.C." changed to "Canada," Mrs. Smith's gospel is applicable to the whole Dominion.

The total value of production and repair work for all classes was $66,077,207, of which automobiles amounted to $54,466,273, accessories to $6,519,868, and repairs to $5,091,066.

Classified according to purpose the number of the different classes of cars recorded in the census returns was (1) touring cars 80,544, (2) runabouts 5,502, (3) closed cars 1,165, (4) delivery wagons 1,231, (5) club roadsters 561, (6) trucks 117, and (7) not classified 556, or a total of 89,676 cars.

The county of Hastings, Ontario, has taken a progressive step in the formation of what is to be called the County of Hastings Development Council. Its purpose is to promote the development of the natural and industrial resources of the county. All British subjects, resident in the county and twenty-one years of age and over, with all high school and university students are eligible for membership. A number of officers and chairmen of committees have been appointed.

Popularizing Made-in-Canada Goods



Lining Up to Buy Canadian Goods

Typical scene in the war days in France after a consignment of Canadian goods had arrived at a Y.M.C.A. hut

In One Year and a Half Y.M.C.A. Handled Five Million Dollars' Worth—An Appreciation of Canadian Products Gained by Soldiers from Many Lands, which will be of Advantage to Manufacturers in the Future

IT is an interesting story which Captain George S. Dingle, Overseas Purchasing Agent of the Canadian Y.M.C.A., has to tell of the way in which "Made-in-Canada" goods have been popularized among the men at the front. In the early days of the war goods required for the Y.M.C.A. huts and canteens were procured from Great Britain and France because it was economically desirable to get supplies from the nearest possible points. Later on, however, as it became increasingly difficult to secure these commodities, a proposal was made that Canada should be drawn upon for such goods as could not be supplied from overseas sources. Representations were accordingly made to the Admiralty and, though the submarine campaign was on in all its force, the Y.M.C.A. was permitted to ship 200 tons of supplies per month.

The first shipments of Canadian-made goods for the boys overseas were made in July, 1917, and from then until the present time from 200 to 1,000 tons per month have been forwarded by Captain Dingle, either from Montreal or St. John. In that time the value of these goods has approximated $5,000,000, which, of course, forms only a part of the huge total handled through the Y.M.C.A. army huts.

Included in the total are goods for the British Y.M.C.A.—for their service to the Imperial troops—and also for the Chinese Labor Battalion, but over 75 per cent. of the value was for the Canadian Y.M.C.A.

To get some idea of the nature and extent of the shipments it may be stated that in January last there was forwarded 400 tons of biscuits and confectionery, the latter consisting principally of chocolate bars, 5,000 cases of Canadian canned fruits and vegetables, 90,000,000 cigarettes, 180,000 cigars, ten tons of smoking tobacco, one car of matches, 2,000 cases of condensed milk, besides large quantities of free writing paper, magazines, chewing gum, syrup and maple sugar, the whole being worth $625,000.

The selling prices placed on all these goods were not set or controlled by the Y.M.C.A., but were regulated by the Canteen Commission of the British Army and the Y.M.C.A. and all similar organizations had to conform to the scale of prices thus established. Selling price lists were printed and posted in every hut and an examination of one of these lists shows that prices were generally below regular retail prices in the City of Toronto. This statement disproves the criticism sometimes heard that exorbitant prices were charged. To Canadian manufacturers the most pleasing feature of this trade in the product of Canadian factories lies in the possibilities it opens up of the establishment of permanent business connections. For Canadian soldiers were not the only ones to patronize the Y.M.C.A. huts where Canadian goods were sold. Men from the British Isles, Australia, South Africa, New Zealand and elsewhere (not omitting the Chinese Labor Battalions and the American doughboys) were also customers, and there is good reason for believing that they gained an appreciation of the Canadian product which they will carry back home with them. This circumstance alone will make it easier for the Canadian manufacturer to introduce his goods in the world's markets. The manufacturers who, for patriotic reasons largely, supplied the boys overseas with goods through the Canadian Y.M.C.A. at no small sacrifice to their home trade are now in a position to reap the reward of their service in the possibilities of export trade.

Most interesting letters have been received by some of the manufacturers whose goods have been getting into the hands of the soldier boys in France, letters testifying most enthusiastically to the merits of the goods. If these mean anything, they may be taken as evidence that the favor gained will be a valuable asset to Canadian manufacturers in the future, and the Canadian manufacturers should recognize the value of the assistance given by the Canadian Y.M.C.A. in making it possible for our Canadian boys in France to get Canadian goods in creating new world markets.

F. R. Still, Vice-President and Secretary of the Canadian Sirocco Company, has left on an extended trip for the far east where he will investigate trade conditions in connection with export work. Mr. Still's itinerary includes Japan, China, Australia and most of the European countries, and he expects to cover approximately 36,000 miles before returning home about November 1st.

Inspection as a Means of Fire Prevention*

A Discussion of the Various Materials Used for Fire Extinguishing—The Question of Hose and Equipment of Factory Fire Brigades—Sprinkler Systems and How They Should be Installed and Inspected—Comments on Factory Construction

By GEO. H. GREENFIELD

Member N.F.P.A. and Fire Prevention and Safety Engineer, Canadian Car & Foundry Co., Limited

(*Concluded from March Issue*)

NOW regarding the extinguishing material for filling the fire buckets. This naturally leads us to the occupancy of the premises, and the class of fire or burning matter to be extinguished.

Water covers the majority of situations met with, but with a manufacturing occupancy one must prepare to deal with possible electrical, oil, paint, gasoline, and lacquer fires, or fires originating from similar materials, some of which are hardly affected by water, if at all, while in others the condition is possibly made worse by throwing on water.

After water the most common extinguishing material is probably sand. Sand should undoubtedly be used where there is possibility of electrical fires, and may also be provided for use on fires originating in the other above-mentioned materials. It should not be of a gritty or sharp nature, as it robs it of the extinguishing properties. Preferably sand should be well riddled through a sieve.

During an inspection of a paint shop by the writer an amusing item cropped up in connection with the fire buckets. There were about twelve buckets filled with sand, and as per usual practice the fingers or pieces of stick were thrust into them to determine their condition. A hard substance was felt in one of them and the buckets emptied. It was found to contain numerous lumps of iron. Some of the bits would not have passed through a two-inch ring. All the buckets were similarly charged. It turned out that the sand used had been taken from the moulding floor of a foundry.

On another occasion when testing the sand, same was found to be in a solid lump. Inquiry revealed that the roof of the building leaked. The water had run into the bucket, and there may possibly have been a little lime or similar substance that had formed a cement, or mortar.

The next fill for fire buckets is sawdust (plain) or mixed with bicarbonate of soda. The use of sawdust as an extinguishing agent is not as well known as it should be. A good mixture that will give results, is one quart of dry bicarbonate of soda to a three-gallon bucket of clean dry sawdust.



A Portable Extinguisher

Conveyance for carrying sawdust or other solid materials for putting out small blazes

The advantages of this extinguishing material is that it floats and in consequence has a much better blanketing effect than sand which sinks. Sawdust is also far lighter, and if anyone feels doubtful try and run a few yards with a bucket of sand. Sawdust also throws better.

Sand and sawdust buckets should always be provided with scoops for throwing the material. These scoops to be secured to the buckets with a piece of wire and soldered, as it is found extremely difficult to keep them in their places. As a matter of fact the majority of buckets examined do not have a scoop, and never had one.

We have been experimenting with good results recently with a large wooden sawdust and bicarbonate container fitted with folding stretcher handles, a drop trap-door opening, and long-handled shovel or scoop, these large containers to be kept near paint-mixing tanks, dip and lacquering processes.

We will now go back to the water fill for buckets for a moment. In most locations barrels should be provided as a means of rapidly refilling buckets. Cold weather introduces a difficulty, *i.e.*, freezing of the water, but this is easily met by using a "non-freezing solution."

Ordinary commercial calcium chloride is used in the following proportions to suit local conditions as to temperature:

* Paper read before Montreal Branch of the Engineering Institute of Canada.

Lbs. Calcium Chloride added to U.S. Gallon.	Approx. Freezing Point Degs. Fahr.
2	18 above zero
2½	4 " "
3½	8 below zero
4	17 " "
5	27 " "
5½	54 " "

We will now take the ordinary soda-acid extinguisher, sometimes known as the turn-over. The standard size seems to be 2½ gallons, although they are made down to 1½-inch gallons for school and household use, and up to three gallons. Larger sizes are made and fitted with wheels from 20-45 gallons.

The principal of operation is: A bottle of sulphuric acid is emptied into a solution of bicarbonate of soda; carbonic acid gas is quickly generated which serves to eject the liquid; a certain amount of gas is actually carried on to the fire with the jet, but the main extinguishing agent is the water. These extinguishers have a very distinct advantage in that they allow of complete control of the direction of the extinguishing agent and can be used to apply same in locations outside of the reach of a fire bucket. The extreme range is a little over thirty feet for the hand-operated size.



A Safety Can

Gasoline, benzine and other inflammable liquids should be kept in cans of this kind

Assuming the proper amount of chemicals to be used in charging, there are two very important points to be watched: That is the proper cleansing of the strainer and hose after discharge, as these are often not properly washed and accumulation of soda closes them which may cause excessive pressure to be generated. The hose must also be examined at the point of attachment, as wear takes place, and when needed the jet becomes ineffective by loss of liquid at this point through leakage, or in some bad cases the hose completely bursts at this place.

Extinguishers Need Testing.

Experience has shown that there are non-approved extinguishers on the market and in use. Some of the non-approved types, especially the early ones, are extremely difficult to handle, no thought having apparently been given to the needs of convenient carrying and ease of holding, whilst in use. The question of strength of the container is also vital.

Our early experience showed that extinguishers needed testing, and re-charging inside of twelve months, and our inspection form as now issued, calls for extinguishers to be tested as follows:

Chemical Extinguishers.—" Number on hand? Are same full and in order?

" Every month one chemical extinguisher or more to be selected and tested by actual operation, care being taken that these tests cover testing in rotation, and records kept. Test so as to cover all inside twelve months, preferably oftener.

Pyrene Extinguisher.—" Must all be kept full and examined weekly. Be careful that no water or moisture gets mixed with the pyrene fluid. After using in confined places, ventilate well."

Some of the following incidents may be of interest, as showing what can take place with chemical extinguishers:

1. We recently tested six extinguishers from a private residence. These extinguishers had not been charged for 5½ years; four were in perfect order; one was very weak and one would scarcely discharge its contents.

2. An extinguisher was installed in a certain office and later a change was made to another room and the extinguisher did not get hung. When the testing and recharging period arrived, a total failure was recorded. Enquiries showed that the extinguisher had been knocked over but was quickly put up again, although it had commenced to operate. What had actually taken place was that the fall had tipped some of the acid into the soda solution, and the chemical reaction had taken place slowly, but after being righted it was thought that everything was in order after the liquid ceased to flow.

The moral from the above is to always securely hang extinguishers on hooks about five feet from the floor and ensure against premature discharge.

3. Two extinguishers were selected at random in a warehouse and taken outside and tested. One failed to operate; the other burst the hose at the connection to the container. Both were kept on the floor, which showed neglect. The burst hose was caused through an accumulation of sulphate of soda and improper washing when being recharged.

4. A chemical extinguisher was taken at random from a store building, and tested. The operation was exceptionally weak. Inquiry finally revealed that the fire chief had, with the best of intentions, in addition to the ordinary charge added calcium chloride, in order to make an anti-freezing solution, as he had recently had an extinguisher frozen in the same place. The result of this experience was immediately circularized to all our works.

Special warning is given by the National Fire Protection Association against this practice.

5. We have numerous records of failures recorded in the earlier days of our inspection system but have only had one during the last year. A new and freshly charged extinguisher was selected from four in a works fire station. It was turned over and commenced to discharge, then stopped suddenly, and was quickly turned back to the upright position and later opened. It was found that the bicarbonate of soda had not all dissolved, and this had choked up the strainer and prevented discharge.

Location of Extinguishers

A scheme we have adopted in connection with extinguishers is to endeavor to locate them near exterior doors on the handle side and a notice is posted outside "*Fire Extinguisher inside door.*" This has been found of great advantage as, apart from being the logical place, it renders the extinguisher available for another department in case of need.

The idea originated one day when the writer happened to be the first man to discover a fire in a small building. It was seen to be small, and he knew there was a chemical extinguisher somewhere inside; but the smoke got too strong before it could be located. The fire alarm was pulled and a hose stream put the fire out. The fire was at first

easily within the capacity of a chemical extinguisher had same been available or location known.

At some of our works we have installed twenty and forty-gallon chemical extinguishers on wheels. The operation is identical with the smaller type, but the stream is larger and much more powerful. Up to date no need has arisen for this larger apparatus; but experimental fires have been built of quite large dimensions, and easily extinguished.

Advantages of Chemical Extinguishers

Some of the advantages of this chemical type of apparatus are: The extreme speed with which a stream can be got to work. Portability. Independence of any water supply, and therefore valuable as a standby at such times as the water supply is shut off for repairs. The main objection is the danger of freezing.

A type of extinguisher on which we have carried out some fairly severe tests is known as the "Foamite." This is in shape similar to the soda acid type and contains two solutions. When put in operation by turning over, it throws a heavy glutinous foam that blankets off the supply of oxygen and when applied to free burning materials such as oil soaked bags, etc., plasters same up and effectually prevents ignition taking place again, where once the material has been applied.

The best application for this foam-producing extinguisher is for use on oil fires, paint mixing rooms, dip tanks, etc., as in case of a tank of paint on fire, it throws a perfect blanket over the surface, which remains for several minutes.

One of our tests with a 2½-gallon foam extinguisher consisted in saturating a burlap wrapper from a bale of waste in two gallons of gasoline. This was easily extinguished and so plastered over that it could not be ignited again, except in one or two small spots that were not quite covered.

Another test consisted of saturating burlap about forty square feet in black japan and benzine, about three gallons in all, being poured over same, lying flat on the ground. This blazed up fiercely and was put out in about a minute and had to be turned over and shaken up before we could ignite again.

The next type of extinguisher to be dealt with is that using a heavy liquid known as carbon tetra-chloride, or mixtures in which this chemical predominates. These extinguishers are small, easily handled, and exceptionally efficient on incipient fires originating with gasoline oils, celluloid paints, and inflammable volatile liquids generally. This is the only type of liquid extinguisher that can be used on electrical fires with safety.

At certain of our works the Pyrene type is carried by night watchmen in holsters. The operation of this extinguisher is by pumping the liquid at the seat of the fire, when the liquid on being heated gives off a dense gas incapable of supporting combustion which blankets the fire, by cutting off the supply of oxygen. The freezing point of the liquid is about fifty below zero Fahr., which is a distinct advantage for cold locations.

We have had trouble occasionally with corrosion, probably caused by moisture getting in with the liquid or else water being definitely used to fill up. It is understood that hydrochloric acid is formed when moisture is present with the liquid. These extinguishers are brought into striking prominence by hanging on a board painted with narrow diagonal black and white stripes.

It is to be remembered when using carbon tetrachloride extinguishers in small rooms and confined situations, that the liquid is very closely allied to chloroform and is a powerful anæsthetic; in consequence the location must be well ventilated after use. We have had a few cases of partial anesthesia from use of these extinguishers.

Occasionally the dry powder type of extinguisher is met with, but these have very little practical value. These extinguishers have always been condemned when found installed and same replaced as necessary by approved types.

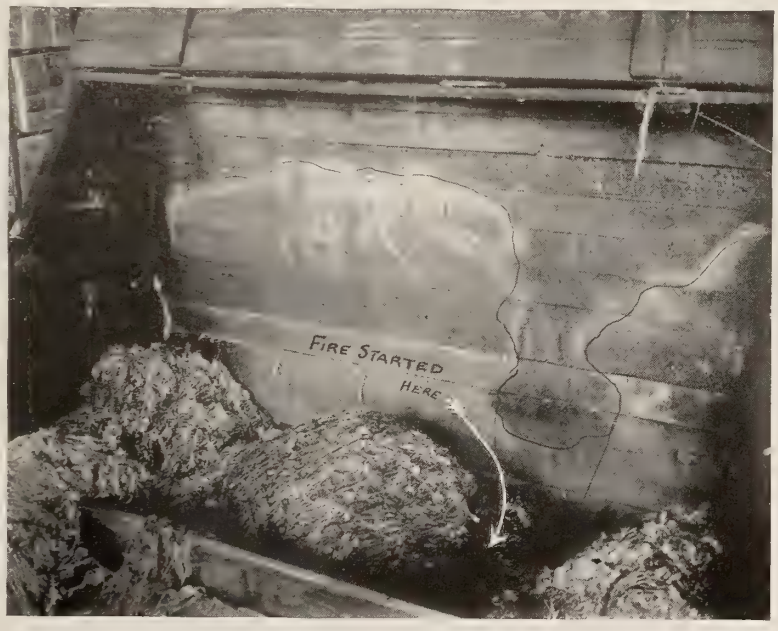
Use and Care of Hand Hose

Hand-hose in situations where a water supply is available is a very efficient means of first aid protection. One and half-inch linen hose should be used with brass nozzles about twelve inches long with a half-inch orifice. Care should be taken to see that the tip is reamed out perfectly smooth, as so many of these small nozzles are cast rough and left unfinished and a rough tip spoils the stream both as regards quantity and reach.

The linen hose should be kept on a reel or rack; must be well looked after and kept perfectly dry or else it will deteriorate very rapidly. It is a good plan to have a ⅛-inch hole drilled to the under side of the hose valve next the coupling to act as a drain and prevent water accumulating in the hose and rotting same.

The provision of hand-hose, however, does not do away with the need for buckets and barrels, as the water supply may be shut off from the hose when needed.

We now come to a very important part of fire protection work: The maintenance of accessibility of valves and hydrants. Our inspection reports used to record such items as:: "Hydrant B had the doors blocked with a pile of steel," or "Post Indicator Valve No. 30 was buried under a load of coke." It is most important that no material shall be stacked, or piled so as to prevent easy access to a hydrant, and allow the hose to be run out without kinking same. This remark also applies to the keeping of all water control valves perfectly clear and accessible, as in case of burst water mains, or sprinkler pipes it is necessary that the affected section can be shut off instantly or the water pressure is lost on the



A Case of Spontaneous Combustion

Fire in this waste bin originated spontaneously at the point indicated

system. Snow is very difficult to deal with, but it must be kept shovelled well back at all times from valves and hydrants, and roads maintained, as handling full hose in deep snow needs to be tried to appreciate the difficulty.

We find that in large lumber yards it is often difficult to quickly locate the hydrant houses, as the lumber piles are frequently changed and one often does not recognize the locality after a fresh stock has arrived. In consequence large boards are placed at various points on the main roads of traffic with the wording "Fire Hydrant," and an arrow locating same. All plants of any size that have additional valves on the system controlling the water supply (and some of our plants have from 50 to 60) should have a definite system of identification, and numbering.

The system adopted at our plants is to have a series of black and white prints made of the works water mains and control valves. All mains are painted red, and every valve is numbered. The hydrants carry letters. These diagrams are framed and located around the works in suitable positions. The idea is that in case of trouble the proper valves to close or open can be seen at a glance, and also it can be seen exactly what protection is removed by the shut-off.

The location of all fire alarm boxes is also shown on these diagrams, and it assists in the identification of the locality of same on the minds of the fire brigade, and works personnel generally.

Regarding the numbering of the valves, this practice allows of a definite inspection being carried out, and intelligent interpretation of the report when it arrives. The fire chief can say "shut" or "open" valve No. 10. No explanation is needed. You can advise our friends the underwriters that valve No. 35 will be closed for three hours on Sunday, and they can at once grasp the importance of the shut off by consulting their copy of the diagram.

Red Tag System of Control

In connection with valve control the "Red Tag" system is in use. This is well known, but in case one is not familiar with it, is as follows: In case of need for a valve to be shut off for any reason, a red tag is attached and the valve number, date, time, why closed, who by, also authorization for the shut-off, are all filled in, and duplicated on stub that tears off. The stub is then placed on a board in the fire chief's office, which board has a numbered hook corresponding to every valve.

This stub stays on the board until the valve is opened, when the tag is brought in tied to the stub and filed. The fact that the valve is closed or about to be closed is always telephoned or telegraphed to the inspection office having jurisdiction and also notification of the restoration of protection. This same notification also comes into the Fire Prevention and Safety Department at Headquarters on a special form. The whole of this elaborate procedure is to prevent unauthorized closing of valves, and to have a definite assurance that if closed for any purpose, a valve is opened again as soon as possible.

Regarding valve inspection all valves are checked daily and given a turn or two and back, all as per the inspection form instructions.

We now get very little trouble, if any, with our valves, due to the care taken, but are not prepared to say that this was the case before the system was started.

Private fire alarm systems of some form or other should be installed. We have various kinds. Where there is an electrical circuit with standard automatic fire alarm boxes installed it is required that one box be tested every day late in the afternoon, in order to see if the works are properly protected for the night.

At other works we have different arrangements; in some instances the putting in of alarm-operated electric bells, and steam or air whistles in the various departments. In these cases the alarm system is used to give the noon hour starting, and stopping signals, which thus insures that the apparatus is continuously tested. In all cases a large steam whistle is blown at the power house to give the general alarm and then a code is blown giving the locality, or fire station.

In the smaller works where there are no private alarm boxes the works are divided up into definite fire areas, each being numbered and a code arranged, which is blown on the works whistle on receipt of a telephone or verbal alarm.

Private Fire Departments

In addition to the private system all our Montreal plants are under a central supervisory service as regards the night watchman patrol. Combination watchman and fire alarm boxes are used.

The establishment of private fire departments and the training of same is an interesting feature, and needs considerable attention. All our works maintain their own fire brigade, which is drilled weekly. The average number of men is twenty. It should be endeavored to so arrange that there are one or two firemen in each department.

The brigade should have amongst its members: The foreman pipe fitter, also one or more of his men. There should also be two or three electricians, whose principal duties would be to attend to cutting electric lines and seeing that there is no chance of firemen coming in contact with live wires when fighting a fire.

The works watchman should attend the drills, but be considered as extras, as in case of fire their duties are to continue on patrol in order to see that other areas are not affected outside where the fire actually exists.

The equipment must, of course, vary according to the size of the works, but for a fairly large concern employing between 1,500 and 2,000 men should consist as follows, same being based somewhat on our own practice:

Fire Brigade Headquarters—An outside room isolated, if possible, from main buildings.
A list of members.
Pipe and valve diagram of works water system.
Code of fire alarm calls.
List of apparatus approximately as follows:
Spare hose on reel, with axe, nozzles, wrenches, washers, etc.
6 Lanterns.
2 Electric torches.
2 Steel bars.
1 10 lb. hammer.
6 Axes.
1 Cross-cut saw, double handled.
1 Hand saw.
Rubber Coats.
Rubber boots.
Woollen mitts.
Helmets.
Belts and spanners.
4 Two and a half gallon soda acid extinguishers.
1000 Calcium chloride for anti-freezing solution.
6 Fire buckets.
Tapered wooden water main plugs.
4 Pyrene extinguishers.
Spare bicarbonate of soda, sulphuric acid.
Spare pyrene fluid.
4 Spare Underwriter play pipes.
2 Dozen spare hose coupling washers.
12 Spare coupling spanners.
4 Hydrant cut-outs.
6 Spare lengths of hose.
200 ft. ¾-inch manilla rope.
200 ft. ½-inch manilla rope.
1 Hose coupling expander and expansion rings.
1 Pair large electric wire cutters.
2 Pair rubber gloves.
12 Hose straps.
3 Nozzle stands.
6 Salvage tarpaulins.
1 Forty ft. telescopic ladder.
Sundry small tools.
Hose record book.
Drill attendance book.
Hose drying rack, or tower.
40 Gallon chemical extinguisher.
Deluge set and siamese for producing heavy streams.

(*Continued on page* 110)

Fire Waste in Canada and Its Prevention*

Few People Have an Adequate Conception of the Appalling Extent of Fire Waste in Canada or of its Significance to Themselves and the Country at Large—Since Confederation Property in the Dominion Valued at Almost $430,000,000 has been Destroyed by Fire

By J. GROVE SMITH
Dominion Fire Commissioner

WITH the cessation of the war, every civilized nation in the world is confronted by economic and social problems of unparalleled magnitude. Canada faces myriad questions immediately touching her commercial and industrial status and, by reason of her vast natural wealth, problems that peculiarly and fundamentally affect her future welfare. One of the most important of these questions is the proper utilization of our national resources.

If Canada is destined to enter upon a period of rapid expansion, as our leading economists predict, every effort should be made to protect from wanton depletion our peerless heritage in forests, fields, mines and water-powers. Conservation must accompany development. In the past, Canadians have been characterized as the most wasteful people on the face of the earth. National abundance has eliminated frugality. The public mind does not appear to adequately realize that unrestrained prodigality in regard to natural resources imperils lasting prosperity nor that the preservation of created wealth is far easier than its re-creation. It is only within the last decade that the gospel of conservation has aroused more than passing interest.



At the rear of a Toronto Block

The main street frontages are graced by imposing mercantile establishments, at the rear of which, ugly and dangerous slum conditions exist

When first established, the Commission of Conservation was a lone voice crying in the wilderness of national neglect. To-day, the principles enunciated by the Commission find place in the legislative enactments of every Government in Canada. Water-powers are being developed without being irrevocably alienated from public control, forests are being protected from the ravages of fire and insect pests, fish and game reserves are being established, our mineral wealth is being more intelligently utilized and scientific agriculture is receiving valuable assistance. In addition to its consideration of natural resources, the work of the Commission also embraces the important questions of protecting property from destruction by fire and of increasing the efficiency of the human factor by improved standards of public health, proper housing and better social conditions. The Commission recognizes that it is as necessary to prevent the destruction of created wealth as it is to conserve natural resources. Nature may eventually restore the devastated areas of our burnt-over forest lands, but nature can never rebuild the homes, the stores and the factories damaged and destroyed by fire. Replacement of values so impaired demands additional expenditure of materials, time, labor and brains and absorbs energies that might otherwise be applied to commercial and industrial progress.

The majority of people have little conception of the extent of fire waste in Canada or of its significance to themselves, their neighbors and the country at large. Some two or three years ago, the Commission of Conservation was requested by the Canadian Manufacturers Association and other public bodies to investigate the problem with a view to its solution. The results of that enquiry were recently published in a report with which you are all familiar. In numerous other ways the Commission has sought to arouse popular sentiment regarding the prevention of fire waste, and there is every reason to expect the early fruition of its efforts. Public opinion throughout the Dominion is manifesting signs of awakening from its erstwhile attitude of torpid indifference. It is becoming increasingly recognized that destructive fires are preventible, that they are largely due to inexcusable carelessness and that the natural carefulness of property-owners has been undermined by a system of insurance which indemnifies individual negligence at the public expense. In several provinces, organizations are being established and programmes of action promulgated by which it is hoped to initiate measures of reform. Fire marshal laws are in force in Ontario, Quebec, Manitoba, Saskatchewan,

* Address at a joint conference of the Maritime Branch, C.M.A., and other commercial organizations at Amherst, N.S., December 11, 1918.



Why Insurance Rates in Canada are High

Carelessness causes over 70 per cent. of Canada's losses. The above conditions were discovered in a basement two days after insurance policies for $?3,000 had been issued upon the contents of the building

Alberta and British Columbia. The Governments of the Maritime provinces alone have taken no action and I, therefore, venture to suggest that this representative gathering seek to have the omission rectified.

Without burdening you with elaborate statistics, it may be instructive to briefly consider the extent of fire waste in Canada. It is of historical interest to note that the first recorded conflagration took place in Halifax, N.S., in 1750, on the first birthday of the newly established town, and that the greatest disaster in the annals of Canada also occurred in Halifax just one year ago. From 1750 to 1917, the Maritime provinces experienced no less than fifteen major conflagrations, chief amongst which was that at St. John in 1877. Since Confederation, property in the Dominion valued at almost $430,000,000 has been destroyed by fire. If to this amount be added unreturned insurance premiums and the cost of public and private fire-fighting systems, the total reaches approximately $900,000,000. This tremendous sum represents the waste in respect to insurable property alone, and does not include the extensive but incalculable losses caused by the destruction of our timber wealth in forest fires. Unfortunately, fire losses in Canada are increasing by leaps and bounds. In the four years, 1912-1915 inclusive, the average annual property loss was $21,250,000. In 1916 the loss increased to $25,600,000, and in 1917 reached approximately $24,800,000. During the first ten months of the present year, no less than 15,927 fires were reported in Canada, the aggregate loss being $28,450,000. On the basis of these figures, it is reasonably certain that the total for the year will reach $34,000,000. Including the expenditure upon insurance and municipal protection, fires will in 1918 cost the people of Canada the enormous sum of $65,000,000, or more than ten per cent. of the recent Victory loan. At a time when we are faced by economic problems of unparalleled gravity, can we afford to be indifferent to this tremendous drain upon our national wealth? With a national debt amounting to $1,800,000,000, and an annual budget of over $350,000,000 to be met by the industry and thrift of eight million people, continuation of our present *laissez faire* policy is unthinkable.

The most striking commentary upon Canada's fire waste is comparison of our losses with the losses of other countries. Since the commencement of the war, the value of property destroyed by fire in the United Kingdom, with its forty million people, has been estimated at $72,000,000. During the same period, Canada with eight million people has suffered from losses aggregating approximately $106,000,000. Our annual loss now equals $4 per capita of the population, while the average of three pre-war years in all European countries combined was 33 cents per capita. It is admitted that conclusions based upon per capita comparisons are apt to be misleading. In Europe, I have seen hundreds of acres fire-swept and thousands of people rendered homeless, although the actual property loss was less than would ensue from a fire in a single business block in a Canadian city. The amount of any loss largely depeds upon the congestion of values within the area affected. It nevertheless remains true that no other civilized country expriences or would tolerate the wanton extravagance of our annual ash heap. While there are certain conditions such as climate and construction which operate to effect a lower fire loss in Europe than would reasonably be possible in Canada, the basic difference lies in the viewpoint and responsibility of the people. We have never yet sub-



Planing Mill Fire in Toronto

Wood-working factories and lumber yards are indiscriminately scattered through the residential and business districts of Canadian towns and cities, and neighboring property pays increased insurance rates. Specially designated areas should be provided for such industries

mitted to the legislative restraints and moral discipline of the old world. Individualism—*quot homines, tot sententiae*—has been our rule of thought and action and there is evident reluctance to recognize that community rights stand above personal privileges. In the near future, however, economic pressure will enforce the truth that the national welfare must not be jeopardized by individual carelessness. The Canadian Manufacturers Association, through a special department, is asserting that Canada's future measurably depends upon the upbuilding of our external trade. In other words, we must be prepared to meet the pitiless rivalry of the open markets of the world by raising to the highest degree of efficiency our entire economic organization and by securing the utmost production of wealth per capita within every branch of industry. The serious handicap of fire waste which is from five to ten times greater than that of any of our foreign competitors, together with every other avenue of waste, must be eliminated.

The attitude of the Canadian public toward fire waste is largely the result of a false conception of the functions of insurance. We are prone to consider fires as local misfortunes that, with few exceptions, are remedied by the philanthropic ministrations of insurance companies. We fail to realize that the insurance upon a burned building does not bring back the property destroyed but merely distributes the loss over all insured property. The insurance companies create nothing, they are merely the trustees of a common fund. The contributions to this fund must at least equal the demands upon it. Only as fire losses decline over the whole country, can insurance rates be appreciably reduced. The property owner, as a rule, considers the question of insurance as affecting only the policies upon his own property and ignores the fact that every fire in Canada is represented in the premium he pays, and that every article necessary to his living or pleasure likewise bears a due proportion of the fire tax in its cost. The amount of this general charge is indirect and difficult to determine and therefore the consumer pays it unquestioningly. A loaf of bread bought at a retail store is loaded with the insurance cost of the retail store, the bakery, the flour warehouse, the flour mill, the terminal grain elevator, the country warehouse, the farmer's barn, as well as transportation insurance during its journey from the wheat fields to the domestic table. All this the ultimate consumer pays and none can escape. Every fire loss occurring from Halifax to Vancouver impoverishes every individual in this country, hampers the wheels of industry and destroys in part the security which is back of our national credit. Recognition of this phase of the fire-waste problem is fundamental to reform.

All attempts to reduce fire losses in Canada have so far been applied in three directions, viz., correction of the habits of the people by education, improvement of properties by financial inducement and adoption of elementary safety measures by local legislation.

(1) Educational propaganda has been largely confined to general statements relative to the extent of fire waste and to the promulgation of warnings calling for carefulness in respect to the more common fire hazards. The fruitlessness of these efforts is indisputably evidenced by the present situation in Canada, and is even more clearly demonstrated in the United States, where fire prevention movements have been in existence for a score of years. Mr. Franklin Wentworth, Secretary of the National Fire Protection Association

of America, thus summarizes the situation: "For many years we have devoted ourselves to the consideration of fire hazards and the instruction of the common understanding in the subject of fire waste. While we have been painstaking and laboriously working, the national ash-heap has been steadily augmenting until we find ourselves with the results of our unselfish labor on our hands, facing fire losses greater than those of all the world, and facing a public which is wholly indifferent to them." In view of this experience we may conclude that fire waste conditions require a more salutary discipline than a presentation of facts. Seventy-five per cent. of all fires originate from causes that are fully comprehended by nine-tenths of our people. Education should not be disparaged on that account, but its limitations should be recognized. No concrete gain will be achieved so long as our attempts to prevent fires remain in the realm of persuasion instead of being transferred to the realm of individual duty enforced by the sanctions of the law. It is largely waste of time to strive to educate individuals, and particularly children, against carelessness that may conceivably result in fires. What is needed is to educate the public in the idea that, *prima facie*, fires are not accidents but that the majority of fires are due to the acts or omissions of individuals who are morally responsible for the costs they inflict upon the community at large.

Insurance Companies Gather Information

(2) Of recent years, the insurance companies operating in Canada have, through the financial inducement of lower rates, attempted to bring about physical improvement of properties with a view to limiting fire losses. No one can sincerely question the fact that the companies, solely for their own benefit if for no broader reason, earnestly seek to learn the true causes of fires. From my own experience, I know that important information relative to the condition of practically every property in Canada is systematically gathered and used for rating purposes. There appears to be no logical reason why such information should not be also used by some public authority to compel improvements and thus prevent fires. It is obvious that merely penalizing defects by increasing insurance rates does not remove the defects. The strongest advocates of schedule rating admit that the financial inducements offered for improved risks have brought about no appreciable reduction in the fire loss. The reports of the Dominion Superintendent of Insurance show that the burning ratio of insured property is practically the same to-day as twenty or thirty years ago. It must be recognized that the insurance companies cannot arbitrarily press drastic requirements upon the public because the public is too suspicious of the companies to support such action. In addition, there is a point beyond which the prevention of fires may be inimical to the interests of the companies and, naturally, they are not disposed to protect the public interest to their own disadvantage. It is generally admitted that, if insurance were not obtainable, fire losses would be greatly reduced. Insurance policies can only be secured from insurance agents, and the Government should demand that the thousands of agents scattered throughout Canada know who and what they are insuring and so conduct their business as to prevent fires as well as reap their commissions.

(3) Existing laws in Canada as affecting fire waste are, in the main, loose, unrelated, lacking in uniformity and centralized authority and generally neglected in enforcement. Apart from the provisions of the Criminal Code with respect to arson, the Dominion Government has not recognized that fire waste constitutes a national problem. Fire marshal laws have been enacted in six of our provinces, but they are of limited scope and for the most part are effective only in connection with the gathering of statistical data and the investigation of incendiary fires. In Alberta and Quebec, no provision has yet been made for their administration. In Manitoba, Saskatchewan and British Columbia, enforcement is in the hands of the Superintendents of Insurance and, in Ontario, a special Fire Marshal's department has been established. A vigorously and fearlessly administered fire marshal law in each province is fundamental to a properly organized fire prevention movement, but it is absolutely essential to success that it be free from political interference. Other than the existing fire marshal acts, the only laws in respect to fires are the statutes prescribing safe exits from buildings and the permissive powers conferred upon local authorities by the various municipal acts. The latter are mainly Governmental evasion of responsibility. In sixty per cent. of the municipalities in Canada no competent action has been taken under the powers granted by municipal acts, and, even where by-laws have been enacted, their provisions are seldom effectively and uniformly enforced. For instance, in one important city, the building ordinance has been amended by the council in no less than twenty-seven instances during the past three years to permit influential citizens to erect prohibited types of buildings. Condemnation of a dangerous condition by a public official is, in many places, the signal for his immediate dismissal. Suspended by the threads of political partisanship or local influence, the sword of Damocles hangs over the inspector who seeks to fairly apply the provisions of the law. These things are brought to your attention merely to emphasize the fact that dead-letter ordinances engender a disrespect for law and order that cannot but affect the character of our citizenship. We need to recognize the ancient truth that the law is not the antithesis of liberty but its only guarantee.

In view of the increasing fire waste, it is clear that very little is being achieved by present attempts to cope with the problem. Spasmodic education, insurance inducements and hit-or-miss legislation are, at best, a trench warfare aimed at wearing down public indifference. The distant future may justify these methods, but the need for betterment is immediate. To secure results, we must first have a concerted plan of action. The problem of fighting fire waste is analagous to the problem of beating the Hun.

Agencies that May be Enlisted

Let us briefly review the agencies that may be mobilized for this purpose. Whatever the national significance of fire waste, it is obvious that every fire is local in origin and, therefore, amenable to local treatment. Nearest to the local problem is the municipal fire department. We tax ourselves to the limit to maintain fire brigades as effective weapons against fire waste, and then instead of taking the offensive, we wait to be attacked and, in Canada, we waste the energies of over 4,000 men in a purely defensive campaign. Efficiently organized, unhampered by politics and given adequate authority, our fire departments would prevent fires as well as extinguish them. Every paid fireman in Canada should be a fire prevention inspector, clothed with power to enforce reasonable laws with respect to the safe occupancy of buildings.

Next to the fire departments are the fire insurance agents, numbering in Canada from 10,000 to 20,000. These agents are supposed to inspect every insured property at least once a year and report dangerous or defective conditions to their respective companies. Every agent should be compelled, by law, to periodically inspect every risk he insures and report defective conditions to the chief of the local fire department

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Activities of the Reconstruction Association

An Educational Advertising Campaign is Being Carried On—Advantages of Standardization and Specialization Demonstrated—Success Being Met with in Effort to Promote Better Understanding Between Capital and Labor

By SIR JOHN WILLISON
President, Canadian Reconstruction Association

IN view of the disturbed tariff situation and believing that the reconstruction period demands continuation of a tariff "adequate to develop Canadian industries and to ensure employment for Canadian workers," the Canadian Reconstruction Association has strengthened its advertising campaign. Any drastic change of economic policy seems particularly unwise during the period of demobilization and re-adaptation to peace activities.

Outside of Canada, there is a pronounced protectionist movement. A higher tariff for the United States has been forecasted by Chairman Fordney of the Ways and Means Committee of the United States Congress who will be the author of the new tariff bill. Congressman Gillett, of Massachusetts, who will be Speaker of the House of Representatives in the new Congress, has made a public statement in which he says that "at the earliest opportunity there should be passed by the Republicans of the House a protective tariff measure which will provide more abundant revenue and prevent an inundation of foreign goods produced by cheaper labor." Throughout the British Empire the policy of Imperial preferences is to be established.

Action of Outside Governments

Outside of the Empire, Great Britain is restricting imports and protecting home industries. A dispatch from Melbourne says that Mr. W. A. Watt, Acting Premier of Australia, has announced the introduction of a measure calling for higher protective duties. France is exercising Government control of imports to build up home manufactures and home markets. Italy's after-war programme calls for a higher protective tariff. Germany is continuing the protective policy which served her so well before the war.

In view of such a world movement towards higher tariffs and Government restriction on foreign trade, any vital Canadian departure from the national policy which has carried the country so well through four and a half years of war would seem peculiarly unwise. The Canadian Reconstruction Association is, therefore, placing its arguments publicly before the country. The Association is also considering a particular advertising campaign for the development of the home market. Such was the decision reached at a meeting of the General Executive at the head office on Friday, March 14th. The campaign, as proposed, will include a special series of quarter-sheet posters, in colors, with miniature reproductions for insertion in pay envelopes. The Association will ask for the co-operation of Government Departments, railways, banks, manufacturers, labor leaders, and retail merchants to ensure a large circulation of the posters.

Through the activities of the Investigation Department, the Association has prepared and is circulating to its members a pamphlet on Standardization and Specialization. Material for this pamphlet was secured from interviews with prominent manufacturers at the great industrial reconstruction conference held at Atlantic City in December, and by means of a questionnaire sent out to several hundred of the United States War Service Committees. In this way the Association has been able to collect much information concerning standardization and specialization from practical business men who have applied them to their own industries and are fully conversant with their advantages.

In a concise summary of the advantages of such measures, the Canadian Trade Commission says:

> Quantity production is dependent upon standardization and specialization. They lower the costs per unit and improve the quality of the product. They are the keys to successful marketing at home and abroad. They enable home manufacturers to meet foreign competitors. They afford the surest guarantee of an increased consumption in the home market.

The attitude of the Canadian Commission is that of American authorities. Mr. Bernard M. Baruch, formerly Chairman of the War Industries Board of the United States, says: "The results obtained from conservation and standardization and from the substitution of one material for another should be preserved for the benefit of our industries. I am wondering whether the wasteful practices of competition, under some circumstances, should not be permanently done away with." Mr. Burwell S. Cutler, Chief of the United States Bureau of Foreign and Domestic Commerce, urging the study of standardization through trade associations, also says: "By far the best educated producers I know are those who have studied their problems in association. In Europe to-day, unified policy and action have become an obligation forced upon the trades by the several Governments."

The Association has ordered 300,000 leaflets containing an examination and criticism of various farmers' platforms which recently appeared in the Toronto *Daily News*. Quantities of these leaflets have been sent to members of the Association, manufacturers, secretaries of trade unions, etc., with a request for assistance in their general circulation.

Relations Between Labor and Capital

Throughout the Dominion the Association is meeting with success in its efforts to promote a better understanding between labor and capital. In the West joint conferences have been held between the Western Committee and the Provincial Governments, and other public bodies to determine means of improving industrial relations. In Quebec the Eastern Secretary reports a pronounced movement for closer co-operation between employers and workers, and he emphasizes the reception given to Mr. Tom Moore, President of the Trades and Labor Congress, at the recent C.M.A. banquet, when over 300 members applauded Mr. Moore's appeal for co-operation.

"The thought of the Trades Union movement," Mr. Moore said, "is that they should be given a little better opportunity than in the past. We are wanting to co-operate, and we are willing to co-operate. Co-operation will not alleviate all our troubles. There are times when we will have to resort to the old-fashioned method of strike. These things will continue, but we can do much toward eliminating their recurrence as often as they have done in the past."

In the hope that the many problems of reconstruction might be brought directly to the attention of Canadian com-

munities, the Association recently wrote as follows to boards of trade throughout the country:

The Canadian Reconstruction Association respectfully suggests to your Board of Trade the advisability of calling a conference to consider the immediate industrial situation of your community, with particular reference to employment. It is suggested that there should be a frank discussion by all concerned of pertinent facts with a view to co-operation between employers and workers and a sympathetic understanding among all elements of the community of the actual situation and outlook. It is desirable that such a conference should be attended by representative employers, employees and consumers. To this end it would appear wise to invite manufacturers, employees, wholesale and retail merchants, representatives of commercial and financial interests, labor leaders, and representative citizens, such as clergymen and teachers. Among the matters which might be considered are the difficulties inseparable from a readjustment of prices from war to peace levels, the outlook for domestic and export orders for local factories, other demands for local labor, and the possible effects upon employment, wages, and prices of the productive competition of other countries seeking as we are a world market to maintain their industrial stability. It is particularly important that your Member of Parliament should attend any such conferences as may be held, and that any recommendations agreed upon should be forwarded to the Government and to the Canadian Trade Commission at Ottawa.

Get Behind the War Savings Stamp Campaign

By W. H. SHAPLEY

Vice-Chairman, Central Ontario Division National War Savings Committee

THERE is no subject that is discussed more at the present time when business men meet, than the outlook for the year 1919. Nothing in history can help us to settle the question, and most men are just wondering what is before them.

The whole world is like a rolling, heaving, foaming sea after a tremendous storm; the disturbance is almost as bad as the storm, and it will take time to get things settled down. As good citizens of the Dominion, it is our duty to do everything possible to resume our normal condition, so that our attention may be given to the peaceful pursuit of trade and commerce, and with the hope that never again will such a terrible catastrophe overtake us.

It is, therefore, necessary that manufacturers, farmers and commercial men do their utmost to stimulate business in order to provide as much employment as possible, and also to produce as much as possible, as it is only by production that we can increase our wealth. The enormous burden of debt which we have to carry caused by the war, can only be met by turning our raw materials into more valuable products for exportation.

At the present time we are anxiously looking for large orders from Europe, but before we can secure them it is necessary for our Government to be in a position to lend a large amount of money to the different countries from whom we expect to get the orders for our goods. If we cannot lend we need not expect the business.

Canadians Are Not Poor

We are, perhaps, not in as happy a position as our rich competitors at the south of us, but we are by no means poor, as we have demonstrated by the very large amounts which have been raised during the past two or three years

While the success of Government bond issues, Victory Loans, etc., has been most gratifying, the money has come from those who were in a position to lend fifty dollars ($50.00) and upwards. There are a number of citizens who are not prepared to loan in that way, but who are ready to do so in smaller amounts, if some simple arrangement could be made, as they feel their responsibility as much as others.

The working people of Great Britain are helping their Government in this way at the rate of $60,000,000 per month, and the United States have already raised over a billion dollars in small amounts.

A short time ago our Government decided to adopt a similar plan to that which had been so successful in these countries. It is called the *War Savings Plan*, and the arrangement is that amounts as low as 25 cents per week can be loaned to the Government with the security equally as good as Victory Bonds. The whole transaction is as simple as buying postage stamps. Thrift Stamps are issued at 25 cents each, and when sixteen Thrift Stamps have been accumulated, they may be applied on the purchase of a War Savings Stamp, which draws interest at about five per cent War Savings Stamps may be purchased at any post office, any bank, many stores, and other business places. They bear interest from 1st January, 1919, and cost $4,00 each in January, with the addition of 1 cent per month when purchased after that date.

The Campaign Organization

Sir Herbert Ames, M.P., is the Chairman of the National Committee at Ottawa, and associated with him are the following: Campbell Sweeney, Vancouver; John Blue, Edmonton; H. A. Allison, Calgary; Hon. Geo. A. Bell, Regina; John Galt, Winnipeg; Geo. M. Reid, London; W. K. George, Toronto; Sir George Burn, Ottawa; W. M. Birks, Montreal; Rene T. Leclerc, Montreal; Sir J. Douglas Hazen, St. John; W. A. Black, Halifax; Hon. Murdock McKinnon, Charlottetown.

The Dominion has been divided into a number of districts with sub-chairmen, so that every citizen from Halifax to Vanacouver may have the opportunity to help in this important matter. Mr. W. M. Birks, Montreal, is the Chairman for the Province of Quebec, Mr. W. K. George is the Chairman for the central part of Ontario, comprising thirty-one counties, including the cities of Toronto and Hamilton. County committees are being organized to take up the work, and it is expected that before long the opportunity will be presented to thousands of our people, and no doubt with satisfactory results.

It is not necessary to ask the co-operation of manufacturers—everyone will see the importance of it. Besides its value in raising money, the cultivation of the thrift habit among those who usually spend all they earn, is something worth while.

There are no Bolsheviks among the men who are saving a little money, and those who have a stake in the country make the best citizens.

The Polish National Department announces that it has opened a Commercial and Industrial Bureau at 1032-35 Aeolian Building, 33 West 42nd Street, New York City, for the purpose of helping to establish commercial connection with Poland.

The Federal Bankruptcy Bill Explained*

History of Bankruptcy Laws in General Outlined—Causes of Failure of Various Laws Pointed Out—The New Bankruptcy Bill Introduced at Ottawa Last Session, and to be Disposed of at the Present Session of the House Analyzed and its Eight Parts Explained

By H. J. ELLIOTT

CANADA is now a nation and the commercial activities of its subjects should not in any way be limited by provincial boundaries; uniformity in commercial law is admitted to be of great service to the commercial community. If it be true that uniform commercial laws would be in the interests of Canadian commerce, then it is also true that those laws which relate to insolvency should be uniform throughout the Dominion, so that creditors in Montreal should be able to know that the remedies against a defaulting debtor resident in Halifax are equally as good and as readily available as the remedies against a debtor in Vancouver.

All countries have and in all ages have had the problem of insolvency ever before them, and they have from time to time endeavored to apply two principles for its solution:—

One principle is that upon insolvency all the property of a debtor not exempt from execution belongs to the creditors and should be distributed rateably amongst them.

The other principle, which is the correlative of the first, is that if the debtor surrenders all his property—if he makes a complete *cessio bonorum*—and has been honest in his dealings and is not incompetent, he should be given a discharge from all existing liabilities.

These two points constitute the essential elements of all bankruptcy legislation.

History of Bankruptcy Laws

The principle embodied in the want of bankruptcy legislation in Canada is historically considered that of slavery.

1. In the most primitive stage of society—indeed the remedy, if there was any, was probably that of private vengeance.

2. In the next stage we have a condition of things which may be described as private vengeance regulated by the State. In this stage we have public imprisonment of the debtor; and in the last stage of development personal restraint entirely disappears and the *honest but unfortunate* debtor is not only not imprisoned but is left free to engage unhindered in the activities for which he may have any especial skill and aptitude to the benefit of himself, his family and the State.

The earliest English statute on the subject of bankruptcy was passed in 1542; the next Act in 1570. Neither of these Acts granted any relief to the debtor in the way of discharge of liability.

In 1706 a new statute was introduced, in which statute the principle of granting a discharge was introduced.

Until 1831 the jurisdiction over bankruptcy estates was exercised by the Lord Chancellor or commissioners appointed by him. In that year the Bankruptcy Court was established in England, and continued until 1883, when the jurisdiction was transferred to the High Court.

When the laws of England were introduced into Upper Canada in 1792, the laws respecting bankruptcy were excepted.

After the Union of Upper and Lower Canada in 1843, a Bankruptcy Act was enacted which granted a discharge to the debtor from all debts due by him at the date of the commission and from all claims provable, under the commission. This Act was by its terms to continue in force for only two years; but by subsequent enactment passed annually it was continued in force until 1849. The Act applied only to traders.

In 1844 an Act for the relief of non-traders was passed, by which such persons were protected from arrest in civil process.

In 1864 a new insolvent Act was passed which applied in Lower Canada to traders, but in Upper Canada to all persons. This Act was repealed in 1869 and the Insolvent Act of 1869 which applied only to traders was substituted.

Canada Without an Act

An Act of 1869 was by its terms limited to four years; but in 1874 it was continued until the following year; and in 1875 a permanent Act was applied applicable to traders only; and this Act was repealed on the first of April, 1880.

Canada has, since 1880, been without a Bankruptcy Act; and, although many propositions have been introduced looking to the enactment of legislation, on this important branch of the law none of the bills have been crystallized into legislative Acts.

It will be seen by reference to the many bankruptcy Acts which have been passed both in England and Canada that bankruptcy legislation has, apparently, been a series of experiments. This has been due to the various causes. The principle of every bankruptcy Act since the beginning of the eighteenth century has been the same; the difficulty has been in the administration. Some of the difficulties may be briefly enumerated as follows:

1. The manufacture of fraudulent claims.
2. The rapacity of trustees.
3. The expense contingent upon the administration of an estate under the official supervision of a Court.
4. The absence of control by creditors.
5. The absence of public examination of the debtor.
6. The want of sufficient penalties for dishonest or reckless conduct, or for violation of principles of commercial morality.

When the debates in Parliament are examined, it will be found that the reasons given for the repeal of bankruptcy Acts did not go to the root of matters. The fault of the law was not so much in itself in principle but in its administration.

The Commons were also influenced, apparently, by the fact that in England they had not as yet succeeded in devising a satisfactory bankruptcy procedure. Many of the complaints were well founded. Parliament, however, overlooked the fact that no real argument against the principle of bankruptcy laws has been brought forward. The objections, apparently, serious as they were, were not to the substantive but to the adjective portions of the law.

The principle of the bankruptcy law was correct; the method of the administration and the enforcement thereof

* An address delivered before the Montreal Branch, Canadian Manufacturers Association, Montreal, February 20, 1919.

were defective; as an example, the English Act which became law in 1883, an Act introduced after exhaustive enquiry as to the proper method of administration and enforcement of the laws, was retained on the statute book and has been administered in such a way as to secure bankruptcy estates for the creditors and justice, not slavery for the honest debtors.

In 1908 the Committee of the English Board of Trade which had been appointed in 1906 for the purpose of enquiring into the workings of the Bankruptcy Act, speaking in general terms says:

"The evidence and documents placed before us do not disclose any dissatisfaction on the part of the commercial community with the main features of the existing law and procedure; while evidence and statistics from official sources show that there has been a large reduction in the amount of the insolvency throughout the country. Since the present system came into force the matters of complaint and suggestions for reform of the law which we have had to deal with have particularly related to special incidents of the law and branches of its administration."

The Present Proposed Act

The Bankruptcy Bill introduced at the last session of Parliament as a result of the efforts of the Canadian Credit Men's Association; and as prepared under the direction of their General Counsel, Mr. Grundy, may well engage the attention of the Canadian Manufacturers Association.

The Bill has been carefully prepared; the framers having doubtless in mind the principles constituting the essential elements of bankruptcy legislation and the history of previous bankruptcy laws, as well as the dominant thought of a summary and inexpensive administration of estates.

The Bankruptcy Bill was listed for the third reading when the House prorogued in May, 1918. It had passed the preliminary stages in the House; had been carefully studied by a select committee which sat almost continuously from the date of the introduction of the Bill until the session terminated. On this Committee were parliamentary representatives whose professional and business interests eminently fitted them to study the measure; and, in addition, to a full discussion amongst the members of the Committee, delegates from many Associations were present and gave the Committee the benefit of their views; many of their opinions were adopted and incorporated into the Bill, but it was considered wise that before the Bill be submitted to the House for final consideration, Parliament should have further expression of opinion. It was, therefore, arranged that the measure should stand over until next session; that the Bill should be reprinted with the various accepted amendments and suggestions, and distributed throughout the country, so that when it comes before the House again at its next session, it will have the advantage of the careful consideration such an important measure should receive before placing it upon the statute books.

The Bill consists of 168 sections; and is divided into eight parts, which will now be briefly referred to:

Involuntary Bankruptcy

Part 1. This part sets out the acts committed by a debtor which constitute "acts of bankruptcy"; entitling his creditors to present a petition to the Court asking for a Receiving Order. For example: If a debtor makes a fraudulent conveyance or gives a fraudulent or preferential security to one of his creditors, or if he becomes insolvent, or if he assigns or removes any of his property to defraud creditors, he commits an act of bankruptcy. Then, if he does not make a voluntary assignment for the general benefit of creditors as provided by Part Two of the Act, a creditor or creditors may proceed against him by petition to the Court for a Receiving Order.

This part of the Act does not apply to wage-earners or persons engaged solely in farming or the tillage of the soil; but should they so desire, they can at all times take advantage of provisions concerning voluntary assignment.

In order to save unnecessary expense and delay the proposed Act provides that when a receiving order is made, the Judge names as a receiver a trustee appointed under the Act. The property of the debtor then vests in the trustee, and without further intervention by the Court or its officials, the trustee proceeds to close out the estate as if a voluntary assignment had been made.

Assignments and Compositions

Part 2. Part two of the proposed Act is a radical departure from the procedure contained in the English and American Acts; it contains the voluntary system of assignment for the benefit of creditors without court proceedings or machinery.

Under the provisions of this part, any person, firm or corporation may make an assignment for the general benefit of the creditors. The assignment is made to a trustee as provided by the Act, and the trustee then proceeds to realize the property of the debtor and distribute the proceeds equitably amongst the creditors in the usual manner, with the safeguards thereinafter referred to.

Part two further provides for the ratification by the Court of compositions or schemes of arrangements approved by a majority in number, and seventy-five per cent. in value of the creditors; and upon such ratification the minority creditors will be bound; but the minority creditors, nevertheless, have the right to be heard if the terms of the composition or schemes or arrangements do not appear to the Court to be just and reasonable—such ratification then will not be given.

The provision should prevent a great deal of unnecessary litigation and will do away with the unfairness which often happens when a few small creditors hold out, and by threatened proceedings, force payment of their claims in full, while other creditors only receive a rate in the dollar.

Trustees

Part 3. This part deals with trustees; their appointment and administration of estates by them.

The provision of their appointment; bonding and taxation of their accounts should afford ample protection to both debtors and creditors. These trustees are to be appointed by the Governor-in-Council and provision is made as to the giving of security to the Crown by the trustee for the proper carrying out of their duties.

Trustees may be appointed for a province or for a certain territorial area.

The amount of security must not, at any time, be less than $10,000; and, in addition to this general security the trustee may be obliged to give further security to the Registrar of the Court for the due accounting of all monies received or to be received by him; and, upon failure to give security, he must vacate the office.

The fees, remuneration and disbursements of a trustee must in all cases, be taxed unless such taxation is waived by resolution of the creditors.

One of the important subjects dealt with in Part three is that of settlements and fraudulent preferences and conveyances. Uniformity throughout Canada on this point would be of especial benefit to the financial and commercial interests

and would have the effect of lessening the large amount of litigation which is always before our courts.

Creditors

Part 4. This part makes provision for meetings of creditors, appointment of inspectors; proof of debts by secured and unsecured creditors; priority of claims; rights of landlords and other matters.

(*a*) Demands in the nature of unliquidated damages shall not be provable in bankruptcy or under assignment.

(*b*) Every creditor shall prove his debt as soon as may be convenient after the making of a receiving order, or, after the date of an assignment for the benefit of creditors.

Every creditor who has lodged proof shall be entitled to see and examine the proofs of other creditors before the first meeting and at all reasonable times.

If a secured creditor realizes on his security, he may prove for the balance due to him, after deducting the net amount realized. If a secured creditor surrenders his security to the trustee, for the general benefit of the creditors, he may prove for his whole debt. If a secured creditor does not either realize or surrender his security, he shall within thirty days of the date of the receiving order, or assignment, file with the trustee a statutory declaration stating therein full particulars of his security, the date when each security was given, and the value at which he assesses each separate security and shall be entitled to receive a dividend only in respect of the balance due to him after deducting the aggregate value so assessed. Where the security is so valued, the trustee may, at any time, upon notice in writing, elect to acquire the whole or any separate security upon payment of the assessed value to be paid out of the estate as soon as the trustee has realized.

The landlord's right to be paid by privilege extends only to three months' rent accrued, and for a sum not exceeding the value of the distrainable assets.

The landlord may rank as a general creditor for the surplus rent accrued due at the date of the receiving order; and for any accelerated rent under his lease not exceeding three months.

Restrictions with regard to claims arising out of marriage settlements are provided for in section 49; and are designed to do away with fraudulent preferences which often lurk within antenuptial contracts; and further dealings between husband and wife, in so far as they effect the general creditors, have been carefully circumscribed.

In sections 90 and 91 will be found clauses that declare that the husband of the married woman adjudged is not entitled to claim dividends as a creditor for money loaned, or for wages or work done in connection with her business, until all claims of the other creditors have been satisfied; and similarly where the husband has been adjudged bankrupt the wife cannot claim as a creditor.

Debtors

Part 5. In this part, the most important provision is one having reference to discharge of the honest debtor.

It is provided that the Court may on application by the bankrupt and after receiving a report from the trustee as to the conduct of the affairs of the bankrupt, on the examination of the bankrupt, grant or refuse an absolute order of discharge or suspend the operation of the order for a certain time, or grant a discharge subject to any condition as to earnings or income which may afterwards become due to the bankrupt with regard to after acquired property.

The provisions as to discharge apply to both bankrupt and an assignor.

The discharge of the debtor will be refused if he has committed a misdemeanor under the Act; the discharge will also be refused or suspended or granted only on fulfilment of certain conditions in a large number of cases where the debtor has not carried on his business according to business standards; for example:

1. Failing to keep proper books of account.
2. Continuing to trade after knowing himself insolvent.
3. Failing to account satisfactorily for deficiency of assets.
4. Giving an undue preference to one or more of his creditors.
5. Having previously been adjudged or made an assignment.
6. Been guilty of fraud.
7. Culpable neglect of business.

It is not proposed that a discharge shall release the debtor from debts for the necessaries of life, unless the judge deems it advisable.

The Bill provides penalties for fraudulent debtors, who do not deliver up to the trustees all property under their control, together with books and records relating to the business. Provision is made for penalties for fraudulent removal or concealment of property prior to the assignment; falsification of books and statements; for material omission in any statement relating to bankruptcy affairs and similar offences. The *onus on the debtor to prove good faith when charged* with any of these offences.

Under the Bill, discharge as in the former Act is not left in the hands of the creditors, but in the Court, as it is apparently recognized that the Court seized of all the circumstances would be in a better position to decide as to whether the debtor should be given his discharge than creditors whose interest in the estate is too immediate and personal to permit of unbiased judgment.

Courts

Part 6. Part six deals with court procedure. It vests jurisdiction in bankruptcy in the High or Superior Courts in each province.

Part 7. Part seven contains a number of supplemental provisions and reference is made to the following: "Every married woman who carries on trade or business, whether separately from her husband or not, shall be subject to the provisions of this Act.

"A minute of the proceedings, at a meeting of creditors, under this Act, signed by a person describing himself as the chairman of the meeting, shall be received in evidence without further proof."

In the case of the debtor or his wife, or of a witness whose evidence has been received by any Court, in any proceedings under this Act, the deposition of the person so deceased purporting to be sealed with the seal of the Court, or a copy thereof, and certified by the Registrar, shall be deemed as evidence to the matters therein deposed of.

Part 8. A very general list of bankruptcy offences have been gathered together in this part; and on the first reading, they may appear somewhat harsh.

The honest trader, however, need not fear any of the provisions, but, on the other hand, the honest man will benefit by the more perfect control of his dishonest competitor; who, when he makes a failure and causes the purchase in of his stock at a rate on the dollar can afford to and does undersell the honest trader.

The only person who can reasonably object to the provisions of this part are the dishonest traders; the men who are lowering the standard of business morals in Canada.

The provisions of this part which have been largely copied from the English Act, have not been considered too harsh for that country; why should they not be enacted here? Is it because of the foreign-born trader who is becoming more numerous every day? If, so, why should we not educate the foreign trader up to the high standard of English business morals rather than permit him to lower ours?

An Analysis of the Masten Insurance Report

Findings of the Commissioner Entirely Justify the Representations Made by the C.M.A.—No Interference with Competition of Unlicensed Insurance and Moderate Supervision and Control by the Province of the C.F.U.A. are Recommended

By "ANALYZER"

THE report of the Hon. C. A. Masten, of the Ontario Insurance Investigation, for which the insurance world has been waiting so anxiously, has finally reached completion and the result of his labors has been presented to the Provincial Legislature. The report constitutes an entire justification of the representations made by the Canadian Manufacturers' Association before the Commission. It will be remembered that the Association took no active part in the investigation until an attempt was made by Canadian insurance interests to restrict competition by imposing an additional tax on fire insurance obtained abroad. Such a tax would undoubtedly have exercised considerable effect on fire insurance rates in Canada and the C.M.A. felt called upon to oppose the suggestion, evidence being given before the Commission by a large number of members.

The Commissioner finds that the Canadian Fire Underwriters' Association exercise practical control of fire insurance in Ontario, and that the licensed independent companies are not sufficiently numerous to afford any adequate check on rates. He states that the only real competition comes from insurance concerns not licensed in the Province, such as London Lloyd's and the New England Mutuals, and he recommends emphatically that nothing should be done which would in any way interfere or hinder insurance buyers from taking advantage of such competition. His opinion that unhindered competition is necessary is so strong that he suggests that inter-insurance exchanges in sufficiently good financial standing might be allowed to transact business in Ontario without making the deposit called for in the Ontario Insurance Act.

C.F.U.A. is Useful.

The Commissioner finds that the Canadian Fire Underwriters' Association and similar bodies are useful and necessary in so far as they tend greatly to reduce the cost of transacting insurance and to preserve the solvency of the insurance companies. Evidence submitted to the Commission, however, showed that the Canadian Fire Underwriters' Association had not always been sufficiently ready to encourage and allow for improvements in construction and fire protection of certain risks. In order that complaints of this character may in future be obviated, the Commissioner suggests that legislation be enacted giving the Provincial Government some measure of control over the C.F.U.A. and all similar rate making organizations. To this end the Superintendent of Insurance should be empowered to act as arbitrator and conciliate between the rate making organizations and the assured.

The report deprecates actual Government rate making, which has always proved impracticable and unsatisfactory, since the insurance companies are in a position to refuse insurance, the rate on which appears to them inadequate. State insurance is held to be still further out of the question. The Canadian Fire Underwriters' Association and other rate making organizations should, however, be required to file copies of their constitutions, by-laws and rating schedules, so that the Superintendent of Insurance would be in a position to arbitrate in cases of dispute between insured and insurer. It should be in the Superintendent's power to disallow any rate which appears to be unjustly discriminatory.

The Commissioner's ideas as to the extent to which the Government should assume control are apparently not very definite, and he probably did not feel sufficiently conversant with the subject to make any concrete recommendations. The theory of conciliation which he proposes, however, while seemingly somewhat vague, would probably work out in practice with a good deal of satisfaction. The Canadian Fire Underwriters' Association is not a combine whose sole purpose is to extort as much as possible from the insuring public. Its rating schedules are probably as fair as any which could be drawn up, but they are not infallible, and the knowledge that there was some final court of appeal before which disputes could be discussed would undoubtedly make underwriters and assured more tolerant towards each other.

Commission Too High

The Commissioner appears to have been impressed with the fact that, in many cases, commissions paid to agents are too high. He cites instances in which commission as high as 40 per cent. of the premium is said to have been paid, and cannot see any possibility of the agents having earned so high a remuneration. He considers that the ideal method of remunerating agents would be on the basis of the actual profit made by the agency or company. It has, however, been found quite impossible to adopt any such scheme. The report nevertheless recommends that unless, before legislative action is taken, the companies are able to agree upon some alternative, the legislature consider an enactment limiting the amount of fees and commissions which may be received or paid on any application for insurance on property situate in Ontario. To offset this proposed reduction in the remuneration of agents, the Commissioner suggests that licenses should only be granted to persons or firms dependent on the business of insurance for a living. This, of course, would eliminate lawyers, bank managers, real estate agents and many other persons who, at present, may collect commission on such insurance as comes their way, by the simple method of paying three dollars for an agent's license.

The report enters at some length into the question of fire prevention, the Commissioner realizing that any substantial reduction of fire insurance rates can only be effected by a corresponding reduction in fire losses. He considers that legislation should be enacted which would fix the legal and moral responsibility for fires, so that the careless cannot distribute the consequences of their negligence among the prudent and careful. "Great fire losses cannot be remedied until the individual who has a fire is looked upon as an enemy to the community if he is unable to prove that the fire was not caused by his carelessness or neglect." The suggestion is also made that the Government should employ experts whose duty would be not only to inspect risks but to educate property owners in fire prevention methods.

Recommendations Made

The principal recommendations submitted by the Commissioner may be summarized as follows:

No interference of any kind with the competition of unlicensed insurance, which is recognized as a necessary check upon the control held by the Canadian Fire Underwriters' Association.

Moderate supervision and control by the Province of the Canadian Fire Underwriters' Association and similar rate

making organizations, which should be called upon to file with the Superintendent of Insurance copies of their constitutions, by-laws and rating schedules. The Superintendent to be authorized to act as arbitrator between such organizations and the assured and to prohibit any rate which discriminates unfairly between risks of essentially the same hazard.

Insurance companies to be required to keep their records in such a manner as to classify the business done and to show the profits made in each of the several classes of risks insured.

A real scrutiny and examination by the Insurance Department of every applicant for a license as agent, broker or adjuster. Power to the Superintendent to refuse or cancel such licenses, but the refusal or cancellation to be subject to appeal to a judge.

Increase of annual fees payable by agents to a minimum of $5.00 throughout the Province and graded upwards from that figure, according to the size of the town or city, to a maximum of $100, applicable to and uniformly throughout the City of Toronto. Consideration by the legislature of the desirability of limiting commissions by statute.

Appointment of a board of business men and experts to co-operate with the Fire Marshal in making fire preventive recommendations. Additional inspection of risks, either by the insurance companies themselves or by the Government or both.

The Commissioner has evidently given most careful thought and consideration to the evidence submitted before him. Most of his recommendations are eminently sane and practicable. In one instance, however, his lack of practical knowledge of the workings of the insurance business has led him to make a suggestion which simply would not in practice be carried out. While emphasizing the importance of the competition afforded by unlicensed insurance and the necessity for such competition remaining unhindered, he suggests that, before the purchase of unlicensed insurance, a specific application should in every case be made to the Insurance Department and passed upon by it and that the application should be refused unless the broker who is applying can satisfy the Department, first, that the insurance required cannot be obtained with registered companies at ordinary or reasonable rates and, second, that the company in which it is proposed to place the insurance is solvent. The second part of the suggestion offers no very great difficulty if the Department is willing to take upon itself the responsibility of deciding what companies are safe to insure with—a rather large "if," when it is remembered that even companies licensed and registered in the Province have not been entirely free from financial failure. The suggestion, however, that a specific application should be passed upon in connection with each separate risk is both dangerous and impracticable. Insurance is frequently wanted in a hurry, and unlicensed insurance cannot at all times be arranged at an hour's notice. An insurer might be and very often would be placed in the position of submitting to departmental delays and going uninsured in the meantime or of paying any rate demanded of him by the licensed companies. No more efficient plan could be devised for "hindering unlicensed competition." Again, upon what basis would the Superintendent arrive at his decision as to whether a rate was "ordinary or reasonable"? Like the famous "Points" of another learned person, the words can be interpreted to mean anything—or nothing. There is not and never will be a Superintendent of Insurance capable of deciding what is an ordinary or reasonable rate for another man to pay for his insurance. A reasonable rate to pay is the lowest rate at which the insurance can be obtained with satisfactory security. Insurance companies do not accept insurance at rates at which they appear likely to lose money.

A Tariff Necessary to Offset Our Climate

Canada, for Natural Reasons, Cannot Compete with a Country Whose Climate is Less Rigorous than Our Own—The Question is One of Fuel Whether in the Shape of Coal or Food

By F. W. HARDING

FIVE leading questions affecting the future of Canada are prominent to-day. These are Tariff, Thrift, Immigration, The Returned Soldier and Labor.

The happy settlement of the last four depend entirely upon how we dispose of the first and most important of all, Tariff.

The effect of a protective tariff is to keep out foreign goods, and allow our own people to be busily and happily employed in furnishing our own requirements as far as possible. This will develop our natural resources. Our internal competition in manufacturing will develop ingenuity and good business methods to a point where, if the tariff wall were ever thrown down, we would have more chance against organized outside competition. We are far from this position as yet.

We need some protection, for we cannot for natural reasons compete with a country whose climate is less rigorous than ours. It becomes almost wholly a question of fuel, whether in the shape of coal or food for man or beast. This question also includes light, for although it may be developed from water power, it costs the consumer just the same. It takes a larger part of a dollar to live in a cold climate than in a more temperate one. We consume more food (fuel) per individual, than in the States. We require more coal for heating due to our longer and more severe winters, and the coal costs more than in the States due to haulage charges. We pay more for lighting because of our shorter winter days and the length of our winters. The cost of all transportation is greater for the above reasons, whether it is the farmer with wagon or sled, or a railway. The manufacturer is affected as well as the individual, his overhead charges are higher in proportion than in the States. Can we then with such a handicap throw down our protective tariff wall, and invite a flood of foreign-made goods?

If we do, then this will happen: our manufacturing will practically stop, and a large number of people will be obliged to emigrate to the country where work is to be had. Not only will this affect factory workers, but it will also affect builders and all middlemen. There will be no factory extensions, and merchants will have fewer customers and they will have less money to buy with. Our Government will lose its income from the tariff on luxuries and goods we must import, and it will also lose other income from the absence of a large number of taxpayers; how then will it be able to pay the interest on its bonds. In fact it would spell disaster to our country, and we would become a nation of farmers only. They would be hard hit too, for they depend on a local population for the sale of their mixed farm products. They would probably be compelled to abandon produce farming and confine themselves to grain-growing in competition with the West, an impossible proposition.

A Traffic Man's Views of Nationalization

President of National Industrial Traffic League of the United States Gives Evidence before Senate Committee on Interstate Commerce on the Railroad Situation — League Opposed to Government Ownership of the Roads

By G. M. FREER

IN regard to the question of what the United States Government is going to do with the railways, it is interesting to note the statement made by President Freer of the National Industrial Traffic League to the Senate Committee on Interstate Commerce, outlining the recommendations of that League with respect to pending railway legislation:—

Statement

G. M. Freer, residence Cincinnati, Ohio, occupation Manager, Traffic Department, Cincinnati Chamber of Commerce, appearing on behalf of The National Industrial Traffic League, of which I am president.

The League was organized in 1906 or 1907 to deal with traffic and transportation matters; to co-operate with the Interstate Commerce Commission, State Railroad Commissions and the transportation companies; to secure additional legislation where deemed necessary and the modification of present laws, regulations, and rulings where considered harmful to the free interchange of commerce.

The membership of the League is composed of officers in charge of the Traffic Bureaus or Departments of commercial and industrial associations, also traffic managers of individual shippers in the U.S. It has grown rapidly and now has a large membership, representing thousands of shippers and receivers of freight, since many of the memberships are held by Chambers of Commerce, Boards of Trade and similar bodies and these, in turn, represent substantially all of the business interests in their respective communities. For illustration the Cincinnati Chamber of Commerce, which I represent, is one of the members of the League and this Cincinnati organization has approximately 3,000 members.

As the League is the only National organization in the United States representing the general shipping public in transportation matters, it has been recognized by the Interstate Commerce Commission and to some extent by the Railroad Administration as the medium through which the shippers may be reached and their views ascertained.

Since its members are from all sections of the country and from all lines of industry, the League can deal only with transportation questions of general interest and national importance, and then only when its members are substantially agreed with respect to the course to be pursued. Consequently it has earned the reputation of being a conservative body, and desires at this time to present a conservative plan for your consideration.

At the annual meeting of the League, Nov. 21-22 (which it will be observed was immediately after the signing of the armistice, and prior to the recommendation of the then Director General for a five year extension of the time for relinquishment of the railroads to corporate control), the subject in which the members were especially interested was the question of the disposition to be made of the railroads, in view of the passing of the war emergency. After full discussion, resolutions were unanimously adopted in substance as follows:—

1st—Unalterably opposing Government ownership or long-continued Government operation of railroads.

2nd—Expressing the belief that, prior to the return of the roads to corporate control and operation, some legislation should be enacted in the interest of the railroads, as well as for the benefit of the public.

3rd—Authorizing the appointment of a special committee to consider the subject and make early report to the Executive Committee, which latter committee had power to act.

Under these instructions, the special committee and the executive committee held meetings, as the result of which I was charged with the duty of presenting the views of the League to your committee.

Realizing that the time remaining will not permit thorough consideration of the subject and the passage of necessary legislation at this session of the Congress, I desire to offer certain recommendations for early consideration, followed by a general outline of the programme we propose for future legislation.

For immediate action, we recommend—

1st—Definite rejection of the proposal to extend the period of Government operation. We are convinced the necessary legislation can be enacted to permit the return of these properties to their owners for operation within the time now fixed by law. And we further recommend that diligent efforts be made to effect the return at an earlier date, if necessary legislation can be had so that the return may be accomplished in an orderly way and with due regard to the interests of the public, including the investors in railroad securities.

2nd—Pending the return of the railroads to corporate control and operation, we recommend that section 10 of the Act of March 21, 1918, be amended to provide that during the continuance of Government operation, all rates, fares, charges, rules and classifications of railroads under Federal control, as shown in tariffs on file with the Interstate Commerce Commission, shall remain in full force and effect until changed by authority of the Interstate Commerce Commission. After return to corporate operation jurisdiction over such rates, fares, etc., to be the same as prior to March 21, 1918.

3rd—That provision be made requiring the Director General to pay final judgments, in suits for recovery of claims for losses, damages, overcharges, etc.

I shall now give our suggestions with respect to future legislation, which we can express more specifically at a latter date, if the committee desires, but which we present in this form at the present time believing that the committee and the other interests represented at these hearings are entitled to a general outline of our views in the matter.

We suggest repeal of anti-trust and anti-pooling legislation as effecting railroads, and the enactment of legislation permitting, encouraging and, in proper cases, requiring co-operative activities among common carriers, such as the pooling of cars, locomotives and other equipment; the joint use of the terminals; also the merger of railroads within reasonable limitations and when approved by the Commission as in the public interest.

In permitting pooling of traffic and of the revenue derived from such traffic, it should be provided that the approval of the Commission be first obtained, that the service of the carriers to the public be not impaired by such pooling and that the Commission be authorized to dissolve such pools whenever the public interest may so require.

The Commission should be given clear and complete authority to fix the division of joint rates, whether or not such joint rates were prescribed by the Commission (Sec. 15 of Act to Reg. Commerce, page 33).

Amend fourth paragraph of Sec. 15 of the Act to regulate Commerce eliminating that provision that the Commission may not, without the carrier's consent, embrace in a through route substantially less than the entire length of its railroads, etc. (Sec. 15, page 35).

Amend Sec. 15 of the Act to Regulate Commerce to give the Commission authority to prescribe minimum rates, where the Commission finds such action necessary in order to remove unjust discrimination or to correct rates found to be so low as to place an undue burden on other traffic.

Give to the Commission authority to regulate the issuance of the railroad securities, supervise the expenditures of the proceeds thereof.

Confer upon the Commission power to authorize or require extension and additional facilities and equipment of

common carriers, and to exercise general supervision ove service, operation and maintenance.

Authorize the Interstate Commerce Commission to co-operate with State Commissions, and to utilize, where practicable, the services and facilities of such State Commissions.

Enact such further legislation as may be necessary to give the Commission jurisdiction to fully control interchange of traffic between rail and water carriers, the establishments of joint routes over such carriers, and to prescribe joint rates and the divisions thereof, or portional rates where desirable, in order to encourage the development and use of water transportation where economical and in the public interest.

We do not favor continuance of the amendment of Aug. 9, 1917, to Sec. 15 of the Act to Regulate Commerce, which requires that schedules of rates be approved by the Commission before filing by carriers. We advocate the initiation of rates by the carriers, subject to the suspension of power of the Commission as now embodied in Section 15. In connection with the initiation of rates by the carrier, we recommend that the Commission be authorized to establish such machinery or prescribe such procedure as may be deemed desirable to provide for publicity by the carrier of contemplated rate changes, and for conference between the carriers and the interested public before tariffs are filed in order to prevent unnecessary litigation before the Commission, and minimize demands upon the Commission for the exercise of its suspension power.

Regional Commissions Undesirable

We earnestly insist that Federal regulation of common carriers be vested in the Interstate Commerce Commission exclusively, and protest against legislation investing Federal regulatory authority in whole or in part in any other Governmental department or agency. We do not advocate legislation creating Regional Commissions, believing that the Commission now has ample power to establish branch offices at various points, if such course seems desirable.

So far as intra-state commerce is concerned, we recommend that no legislation be enacted at this time attempting to interfere with regulation by state authorities. We believe that, with the clarifying of the situation as the result of the Shreveport and other cases, the Interstate Commerce Commission, if given appropriate authority, can work out plans under which conflicts between Federal and state regulation will largely disappear.

Our experience has suggested the possible desirability of certain other amendments to the Act to Regulate Commerce, but they have no direct relation to the situation now under consideration by the committee and do not grow out of the experiences under Federal control, nor are they essential in connection with the return to corporate control. We therefore assume that such suggestion should be reserved for later consideration.

Judging from press reports, I understand that our recommendations are substantially in accord with the programme submitted by Commissioner Clark for the Interstate Commerce Commission, except that he did not indicate the agency through which the regulatory power should be exercised. I should perhaps say that, when we considered this subject and reached our conclusions we did not have the benefit of the views which have been presented to your Committee by the Interstate and State Commissions, the Railroad Administration, Railway Executives, employees, and other interests, but our subsequent knowledge of their views has not changed our attitude.

Having concluded the presentation of our recommendations, I desire to offer some general observations on the subject.

It will be seen that we do not suggest or favor any radical change in governmental policy toward the carriers, but rather that we advocate what we believe to be the logical steps to round out our present scheme of regulation.

People Against Government Ownership

We are confident that the people of our country do not want government ownership and operation of the railroads, nor do they favor an extension of government operation for five years, three years, or for any other period beyond that fixed by the present law. No heed should be paid to the suggestion that government operation has not had a fair trial and that experience under peace conditions will change the attitude of the public in the matter. The people of this country would not have consented to government operation excepting as a war measure, and they were not, and are not now willing that government operation be tried merely for the purpose of determining its advantages or disadvantages as contrasted with corporate operation.

I admit that government operation has not been tested under favorable circumstances, and I do not doubt that the Administration can and will greatly lessen the criticisms and complaints which have been the results of the first year's operation. I believe the Director General and most of those associated with him, earnestly desire to give good service, treat the public considerately and avoid harsh and arbitrary methods. But we object to the system however ably and considerately it may be administered.

There is no doubt that the public overwhelmingly favors the return to corporate operation, but even if the sentiment were evenly balanced as between government operation on the one hand and corporate operation under regulation on the other hand, it would still be the part of wisdom to choose the latter course, since, at any time in the future, the other course can be adopted if found desirable, while if we once go to the government ownership or long-continued government operation, we cannot retrace our steps. The fear is quite general, and in my opinion well founded, that if these roads are to be operated by the government for five years or three years beyond the time now fixed by law, it will be practically impossible to relinquish the properties, and that in effect, continued government operation would mean government ownership.

I think we appreciate some of the difficulties confronting the Director General under the limited tenure of control. They are real and many, but I cannot see in what way an extension of time can possibly lessen them. Presumably they would be greater at the close of the extended period, than they are now. Regardless of the length of time of government control these difficulties would be present whenever we approached the time for relinquishment of control.

However, because these difficulties are real and make it impossible for the Director General or for the railroad corporations to make plans for the future, we especially urge early settlement of the question. Definite announcement of the government policy with respect to future disposition of these properties and ending the present uncertainty in that regard will relieve the situation to a degree, even if additional legislation is still to be enacted.

The public is deeply interested in this phase of the question, not only as users of the transportation service, but because delay in settling the transportation problem will undoubtedly retard reconstruction work in other lines of industry.

This statement, coming from the National Industrial Traffic League, should have a great bearing on the situation, as the League is recognized by the Interstate Commerce Commission and the Railway Administration as an official organization representative of shippers in every part of the country.

Office of Chairman of Canadian Freight Association Moved

The office of the Chairman of the Canadian Freight Association, Mr. G. C. Ransom, has been moved from 95 McGill St., to Room 909 Shaughnessy Building, 137 McGill Street, Montreal, Que.

New Appointments

The following appointments have been made in the Foreign Freight Departments of the Canadian Pacific Railway:

E. N. Todd, General Foreign Freight Agent, Montreal.
P. J. Melvin, Export Freight Agent, Montreal.
C. Gowans, Import Freight Agent, Montreal.
J. A. Morice, Agent, Foreign Freight Department, Toronto.

Grain-Milling and Transit

A hearing in connection with the proposal of the carriers to advance stop-off charge covering milling-in-transit of grain was held in Winnipeg on March 4th, at which time interested millers were represented by Mr. Isaac Pitblado, K.C., Mr. L. Richards of the Quaker Oats Company, and Mr. J. E. Walsh, General Manager of the Association. Considerable evidence was submitted on behalf of both sides, the Board reserving judgment.

Express Rates Case

Expected that Judgment Will be Rendered in this Case at an Early Date

The application of the express companies for increase in rates has been heard at different points throughout the West, and the final argument in Ottawa took place on March 19th. At the hearing in Ottawa, the Association was represented by counsel and the General Manager, at which time it was pointed out that the Express companies had not justified their application. The final hearing was held in Moncton on the 24th to allow interested shippers in the Maritime Provinces to give evidence. It is expected that the judgment will be rendered in this case at an early date.

Steamship Services

Explanation of the Present Congestion of Commercial Traffic to United Kingdom Ports

Owing to an accumulation at the Atlantic seaboard, the services via American and Canadian ports, in so far as commercial traffic is concerned, have been somewhat restricted. The difficulty has been due to the fact that the British Ministry of Shipping increased the space for allotment for commercial traffic on each vessel to 50 per cent. The carriers accordingly proceeded to book commercial traffic to this extent, but subsequently the British Ministry of Shipping found it necessary to require more space for its own use, which created a congestion of commercial traffic. We understand, however, that this situation is being relieved gradually, although it is expected that the allotment of space for commercial traffic will not exceed 30 per cent. on each vessel until May or June. The situation at New York is caused to a great extent, by the strike of the harbor workers.

Distribution Freight Tariffs

Agreement by Carriers to Make an Investigation of the Handling of Freight Tariffs

Since the carriers inaugurated the system of requiring payment for freight tariffs when supplied to consignors or consignees, there has been more or less difficulty in securing tariffs. In the December issue conditions, as outlined in the Canadian Freight Association's general circular No. 11 were explained. Since that time we have received complaints from some of our members of their inability to secure tariffs. In order to place the matter properly before the carriers a meeting was called between a special committee of the Canadian Traffic League, at which the Association was represented, and representatives of the carriers. This meeting was held on February 26th, and the question discussed. The outcome was very satisfactory, and the carriers agreed to immediately make an investigation of the handling of freight tariffs, with a view to eliminating any difficulties. They also agreed to keep their tariff indexes up to date, either by re-issuing the index or issuing supplements thereto once a month.

For the information of those interested the following is the manner in which tariffs are handled in Eastern and Western Canada:

East of Port Arthur: Shippers desiring tariffs should apply to the Chief of Tariff Bureau, the General Freight Agent or the Assistant General Freight Agent of the railway issuing the tariff. The request should clearly state the numbers of the tariffs. If, however, this is impossible, a brief description should be given—that is, the territory desired covered and the commodity on which rates apply. The accounts for such tariffs will then be sent out monthly by Mr. G. C. Ransom, Chairman Canadian Freight Association, Montreal. The names of some of the officials of the different roads to whom requests for tariffs should be sent are as follows:

R. J. Hunt, Chief of Tariff Bureau, C.P.R., Montreal.
J. B. MacPherson, Chief of Tariff Bureau, G.T.R., Montreal.
*R. E. Perry, Assist. General Freight Agent, C.N.R., Montreal.
G. C. Martin, General Traffic Manager, T.H. & B., Hamilton.
A. Johnson, Chief of Tariff Bureau, M.C.R.R., Detroit.
H. S. Bradley, Chief of Tariff Bureau, Pere Marquette, Detroit.

*Mr. R. E. Perry, Assistant General Freight Agent, Canadian National Railways, will distribute all tariffs formerly issued by the Canadian Government Railways and Canadian Northern Railway.

Port Arthur and West: All requests for tariffs issued by lines Port Arthur and West are made direct to Mr. W. E. Campbell, Secretary Canadian Freight Association, Winnipeg. As the tariffs are issued by the individual lines, it is necessary to specify which railway's tariffs you desire, giving similar information to that outlined for tariffs in the East.

Between points east of Port Arthur and points west thereof: Tariffs naming rates between the two territories are usually published, westbound by Mr. G. C. Ransom, Chairman Canadian Freight Association, 137 McGill St., Montreal, and eastbound by Mr. W. E. Campbell, Secretary Canadian Freight Association, Winnipeg. Requests for these tariffs, therefore, should be made direct to Mr. Campbell or Mr. Ransom, whichever one issues the tariff.

Three New Appointments

Canadian Pacific Ocean Services, Limited, Names Three Important Officials

Announcement was made on March 1 by G. M. Bosworth, Chairman of Canadian Pacific Ocean Services, Limited, that W. T. Marlow had been appointed general freight agent in charge of freight traffic, Atlantic and Pacific services; G. D. Robinson, European freight agent, and G. C. Dew, Asiatic freight agent.

Mr. Marlow has been continuously in the service of the C.P.R. for 32 years, except as temporarily loaned to the British Government for war work. He entered the employ of the road in 1886 as a junior in the despatcher's office; was transferred in 1888 to the office of the assistant superintendent, and in 1889 to the office of the assistant freight traffic manager, Toronto, rising to be chief clerk. In 1896 he became chief traffic clerk in the general freight agent's office in Toronto. In 1897 he was appointed to fill vacancy in staff of the general agent, Hong Kong, where he remained until 1902. On return to Canada, he was granted six months' furlough, and in April, 1903, became assistant to foreign freight agent, Montreal. On the reorganization of 1904, following acquisition of the Atlantic steamship fleet, he became import freight agent for both railway and steamship services.

At the outbreak of the War in August, 1914, his services were loaned to the Dominion Government as Assistant Director Overseas Transport. He continued in that capacity until September, 1918, when, under reorganization, the Overseas Transport Department was placed directly under the British Ministry of Shipping, London, Eng. Then appointed Deputy Director-General, British Ministry of Shipping (Canada), headquarters Montreal, and served in that capacity until March 1st, 1919.

Mr. Robinson entered the C.P.R. employ in St. John, N.B., in 1895, as junior clerk in general freight agent's office, and occupied various positions until 1907, when he was transferred to Montreal as chief clerk to the general foreign freight agent. In 1909 he was appointed assistant export and import freight agent, Toronto. In 1915, he returned to

Montreal as export freight agent. In 1917, he was loaned to the Overseas Transport Department of the Dominion Government in charge of grain transports. In September, 1918, when re-organization took place, Overseas Transport Department being transferred to the British Ministry of Shipping, he was appointed Director Ocean Liner Department, British Ministry of Shipping (Canada), headquarters Montreal.

Mr. Dew entered the service of the C.P.R. in 1907 as stenographer to Mr. W. B. Bulling, assistant freight traffic manager. In 1908, on removal of assistant freight traffic manager's office, was transferred to Montreal. In 1909, went to office of the vice-president, occupying successively the positions of private secretary, clerk and chief clerk until 1914, when he was appointed contracting agent, Asiatic and Australian freight traffic. In January, 1917, he was appointed Asiatic freight agent.

Freight Classification

Procedure in Regard to Proposed Changes in Ratings or Conditions of Carriage in Freight Classification

It has recently come to our attention that our members are not familiar with the procedure in connection with the handling of freight classification matters. Therefore, for your information the following is submitted:—

1. The Canadian Freight Association files with the Board of Railway Commissioners proof copies of supplements containing contemplated changes to the Classification. This filing is required by an Order of the Board. At the same time they send proof copies to the Canadian Manufacturers' Association and various Boards of Trade throughout the country. This again is also required by an Order of the Board.

2. On receipt of these proof copies the Transportation Department of the Canadian Manufacturers' Association, as well as those Boards of Trade who have such departments, make a careful study of the proposed changes, and advise their interested members of what is contemplated, asking for objections supported by detailed information.

3. On receipt of these objections they are carefully tabulated and a letter is written to the Board outlining just what items in the proposed supplement are objectionable. A copy of this communication is also sent to the Canadian Freight Association, with a request for the setting of a date for conference, at which time the objections can be discussed.

4. The meeting then takes place, usually in the office of the Canadian Freight Association in Montreal, at which time this Association, Boards of Trade, individual shippers, and a representative of the Board of Railway Commissioners are present. The objectionable items are then carefully gone into and an endeavor made to have them disposed of satisfactorily to all concerned.

5. Any objections which are not settled in this way are then referred to the Board of Railway Commissioners, and a public hearing held thereon, after which the Board rules as to what shall be done.

This method has been followed for a number of years and has been very satisfactory.

Utilizing Lignites

Saskatoon Board of Trade is Evincing Active Interest in this Important Subject

The Board of Trade of Saskatoon is taking an active interest in the question of utilizing lignites. It is co-operating with the Lignite Utilization Board, which has been created by the Federal Government to carry out the proposed carbonating, briquetting scheme in southern Saskatoon. The Saskatoon Board of Trade has passed a resolution that the members of the Lignite Utilization Board be requested to investigate fully the following phases of fuel consumption:

(*a*) Efficient absorption of lignite in its various forms—raw, dry, carbonized, and powdered.
(*b*) Improved mechanical design of furnaces.
(*c*) Scientific operation of coal burning plants.

New Pension Scheme

Toronto Carpet Manufacturing Company Embarks on Scheme of Welfare Work

The Toronto Carpet Manufacturing Company and its subsidiary, the Barrymore Cloth Co., have launched out upon a new programme affecting the industrial and social well-being of their employees. A nucleus of $10,000 has been set aside for a pension scheme; two weeks' holidays with pay for all foremen who have been in the employ of the company for a year or more is to be granted; a substantial cash reserve as a donation to the Mutual Benefit Association, recently formed by the employees, has been set apart, and an allowance of $100 by the companies has been made toward funeral expenses of any employee dying while in the service. The president of both companies, Mr. E. B Hayes, has announced this programme, following an exchange of ideas between the superintendents and foremen on the whole matter.

The first step of this new policy is the announcement that as far as possible, only returned soldiers will be employed, and the present employees have expressd their willingness to assist in the training of returned men for duty in the various departments of the plants. The companies desire to maintain the present high standard of wages, but to do this, it is claimed, there must be increased production. It will be necessary to turn out 1¼ yards of material for every yard turned out by foreign competition, and the employees will make every effort to raise the standard of efficiency to that which was maintained on munitions contracts.

A large and modern lunch room is to be added to the plants, and the hospital room has been furnished with better equipment and placed in charge of a graduate nurse. Provision is also made for nursing assistance at home where necessary.

All Steel Equipment

How the John Bertram & Sons Co., Dundas, Are Equipping Their Warehouses with Shelving, Etc.

The Dennis Wire & Iron Works Co., Limited, London, Ont., have been doing some useful pioneer work in the way of promoting the use of high-grade furniture steel in the construction of factory and shop equipment such as cabinets, shelving, stock-room partitions, lockers, etc.

Recent figures on work just completed for the John Bertram & Sons Company, Dundas, Ont., are of timely interest. In the warehouse for small tools alone, this company had no less than one-tenth of a mile of shelving installed, with bin fronts, label holders, etc., besides a great many stacks fitted with drawers for small drills, taps, etc., aggregating a total of some 1,200 drawers, each with label holder to indicate contents. These stacks are built to carry extremely heavy weight on account of the nature of the material stored. The standard type shelving and drawers was used in anticipation of the necessity of adding similar units from time to time.

All this equipment was planned and installed so that the stocks, instead of being placed along walls, run out from the walls to the centre of the warehouse, leaving passageways between, and the layout is such that between each row of stacks there is a window, providing sufficient light and air. All stacks extend the same length, and the whole presents a most orderly, uniform appearance, and will make the task of stock-taking comparatively simple.

For the same firm, the Dennis people are installing some 200 steel wardrobe lockers for the use of employees, besides complete equipment of steel tables, footrests, stools, etc., in the drafting room, the whole making one of the most up-to-date installations of all-steel units in Canada to-day.

AMONG THE INDUSTRIES

Under this heading are published items of news of current interest concerning the activities of Canadian manufacturers. Information about changes of interest, enlargement of plants, and plans for future developments are welcome, and are published free of charge, provided they should not be properly classified as advertisements

***Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin**

ALBERTA

Edmonton.—The Alberta Provincial Sheep Breeders' Association proposes a large woollen mill for Alberta.

BRITISH COLUMBIA

Port Alberni.—Watson Bros., 141 Frant St. W., Vancouver, plan erection of salmon cannery.

Prince Rupert.—The G. T. P. Dry Dock and Ship Repair Plant authorities are now taking stock preparatory to turning over the plant to the Mullen Construction Company of Pittsburg, Pa., for the purpose of carrying out the contracts in hand for steel ships for the Canadian Government. Wooden ships are also to be built and it is also planned to undertake marine repairs on an extensive scale.

Vancouver.—The Tudhope Electric Metal Company, Ltd., which is erecting a plant on the C.P.R. reserve on the north shore of False Creek, will instal a large electric furnace, utilizing large quantities of scrap metal. All the old scrap metal, borings and broken castings of the C.P.R. have been contracted for, and will be melted up in the most modern manner and cast into pig iron, which it is expected will find a ready market at the present high prices of metal.

A new industry which will supply both local and export markets is now being completed on Industrial Island, and will be known as the Pacific Roofing Co., Ltd. The chief product of the plant will be Asphalt Ready Roofing, in rolls, the asphalt compounds for which are secured in British Columbia, the company thus using a local product in the manufacture of its output. The company will have representatives in Australia, New Zealand, and the Orient.

Work has begun on the construction of a factory for the Coca-Cola Co., at the corner of Richards and Smythe Streets, at a cost of $1,000,000. The Vancouver factory will be the distributing point for British Columbia, and, though starting out as a one-story structure, will have foundations prepared to carry three stories.

Victoria.—Steps are being taken for the incorporation of the Harbor and Marine Company, Limited, which concern is laying down a plant here for the construction of two 8,100-ton steel steamships for the Dominion Government. Construction will be commenced as soon as the first shipments of steel are delivered. Heading the new concern will be C. J. V. Spratt, President of the Victoria Machinery Depot, Ltd.

The Cholberg yards are increasing their mechanical equipment, a new steam air compressor having been installed and considerable increase in the pipe line being planned.

The Watson Dry Dock and Construction Co., Ltd., with a capital of $100,000, is to build and equip a floating drydock at Victoria and will also build tugs, scows and other small craft. A thoroughly modern machine shop is to be erected, and the company hopes to secure contracts for repair work on an extensive scale.

NEW BRUNSWICK

St. John.—According to Mr. Stanley E. Elkins, M.P., who recently returned from the Old Country, representatives of a prominent English shipbuilding organization are coming to visit St. John, with a view to establishing a shipbuilding plant there. It is understood that several other sites are being inspected. It will be remembered that there was some talk of an English firm establishing at Dartmouth, N.S., about a year ago, and this project also may now revive. Labor troubles in England are causing capital to look abroad more and more.

NOVA SCOTIA

Springhill.—The Dominion Coal Co., Ltd., Glace Bay, contemplate the erection of a compressor plant. Estimated cost, $200,000.

ONTARIO

Bridgeburg.—The Canadian Allis-Chalmers Company expects shortly to launch its first vessel at these yards. The new ship is around 3,500 tons and will be adapted for either lake or ocean-going service. Another keel is to be laid on the slip as soon as the present vessel is launched.

Cobourg.—The Douglas Packing Co., of Fairport, N.Y., have purchased the old steel plant here from the Imperial Munitions Board and will erect new buildings and instal machinery at a cost of $150,000. The industry extracts the pulp from apples, which is sent to jam factories. The making of cider and vinegar are by-products.

Elora.—The plant of the T. E. Bissell Co., which was destroyed by fire on November 19th last, is now operating again, and plans are being made for a considerable enlargement. This will include a new one-story machine shop.

Galt.—Getty & Scott, Limited, shoe manufacturers, have taken over the Crown Hat Company's building and will equip it as their plant No. 2. The building is 60 x 75, three stories, with a one-story annex, 60 x 70 feet. The turn department will be accommodated in the new premises.

Ground is being cleared for the construction of a $25,000 factory for the Riverside Silk Mills.

The Goldie & McCulloch Co., Limited, have recently received an order for 14 600 h.p. engines for the Foundation Co., of New York, to be laid down in Savannah, Ga.

Sheldon's Ltd. have recently completed a new pattern storage and warehouse building, three stories in height and 75 feet by 125 feet long. This structure is of mill construction, and is served by a railway siding for the loading and unloading of material.

W. J. Westaway, architect, of Hamilton, is preparing plans for the erection of a new silk mill in this city for McCormick and McCormick.

Guelph.—At a meeting of the directors of the International Malleable Iron Co. last month, it was decided to proceed at once with the erection of a new factory, three stories high, 160 by 60 feet, in addition to their already large plant. The new building will be used for the manufacture of pipe-fittings for the foreign and domestic trade, and will provide employment for at least 100 men to start with. The work of construction will begin as soon as the plans are confirmed and the contracts let.

Another new industry which will start at once is the Lang Machinery Company, which has leased the large factory building on Suffolk Street, owned by the city, for a period of five years, and will carry on a general machinery business. The company is capitalized at $100,000, of which $40,000 is paid-up.

The ratepayers voted last month on a by-law granting exemption from taxes and a $50,000 loan to the Partridge Rubber Footwear Co. The factory will cost $250,000, and give employment to 500 people.

The Premier Rubber Co. will erect a four-story reinforced concrete factory building. Estimated cost, $125,000.

Premier Rubber Co. plans erection of four-story reinforced concrete rubber shoe factory, costing $150,000.

Hamilton.—Morris Michnik, 172 Cannon St. W., plans to erect $20,000 mattress factory.

A new factory may be located here to construct Henry Ford's new $300 automobiles.

Hensall.—The Jackson Mfg. Co. of Clinton intend opening a factory here in the near future, which will give employment to a number of women and girls.

Kitchener.—The Kaufman Rubber Co., King St., contemplates erection of addition to factory.

Owen Sound.—Wm. Kennedy & Sons have extended their plant. The Company has recently absorbed the Owen Sound Iron Works, where they continue the business of constructing ship machinery, boilers, cement and sawmill machinery. Both plants have plenty of orders in hand.

Port Hope.—The Canadian Mathews Gravity Carrier Co., Ltd., have purchased a new factory in Port Hope and have moved their general office and factory here. A branch office is still maintained at 407 Lumsden Building, Toronto.

Sarnia.—Romeo Foundry Co., Port Huron, Mich., plans erection of foundry. Manager, L. G. Blunt.

W. D. Ferguson and J. McCutcheon have purchased the building at 313 Front St., known as the Woolen Mills Building, and will spend between $40,000 and $50,000 renovating and repairing it for a cold storage plant.

The H. H. Robertson Co. of Canada, capitalized at $200,000, has been incorporated for the manufacture of asbestos-covered steel roofing and siding, ventilators, gutter and drain pipes, skylights and asphalt paint. The new company has purchased the plant of the Sarnia Metal Products Co., and will commence operations May 1st. Approximately $25,000 worth of new machinery will be installed and employment given to about forty hands at the start.

The Holmes Foundry Company is contemplating the erection of fifteen houses on its property at the north end of the city. These houses will be built for employees of the company and will be located on the grounds of the company. About a year ago the Holmes people, who also have a branch in Port Huron, secured a tract of land beyond Exmouth Street, and it was their intention to proceed at once with the erection of a plant. Owing to the scarcity of building material and the inability to procure raw materials used in their factory, construction work has been delayed. It is expected that the company will commence shortly on the construction of the plant.

Bring Your Industry to Hull

ON the left bank of the Ottawa River—famous in the annals of lumbering—opposite the Capital City of Canada, stands Hull.

Hull is destined to be one of the busiest factory cities on the continent. Nothing can prevent its growth because it offers:—

Hydro-Electric power as low as $12 per H.P. per year.

Plenty of labor (population 200,000 within 2½ miles.)

Low fixed assessment on land for 15 years.

Low tax Rate.

Tax exemption for 15 years on improvements.

Cheap factory sites including water-front sites with private power development privileges.

Shipping facilities over 11 steam railway lines and by river and canal to the seaboard and great lakes.

Every condition that makes for economy and efficiency of production is available for the manufacturer who locates in Hull.

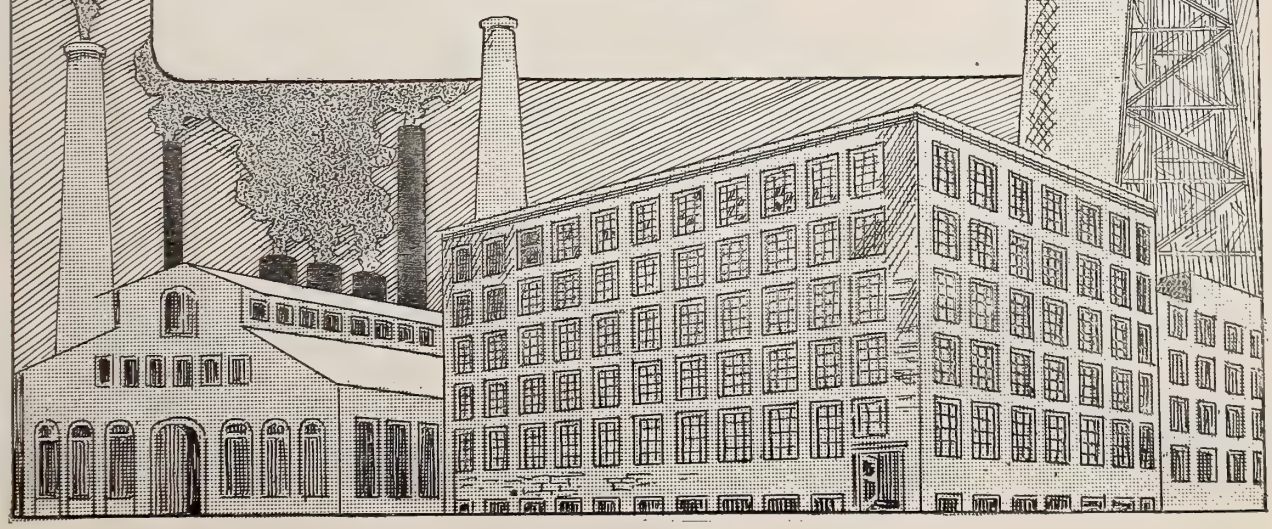
In no other Canadian City can be found so many advantages as in Hull, where the City Council has undertaken a policy of consistent encouragement for, and co-operation with, new industries locating within its borders.

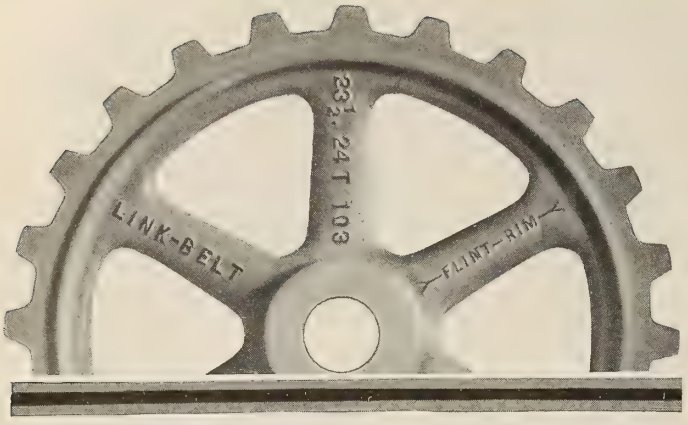
There's a lot about Hull that would interest you. Write for illustrated literature which gives all the particulars you would like to have for consideration.

W. F. Hadley

Industrial Commissioner

HULL, CANADA



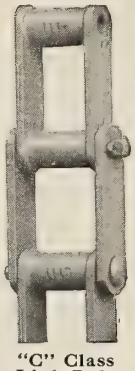


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"H" Class Saw Mill Pintle Link-Belt

BREAKDOWNS are expensive. They mean expenditures for repairs and loss of time, labor, and output. The success and profit of each day's operation depends very largely on the strength and endurance of the power transmitting and material—conveying chain employed in your mill.



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has long been recognized as the standard form for conveying and power transmitting equipment. Its ability to successfully withstand undue strains and the wear and tear of years of service has earned for it the undisputable claim on leadership.

We show a few of the various types of saw mill Link-Belt. Our Book No. 260 shows many more. Send for a copy.



Ewart Detachable Link-Belt

Look for this Mark on Every Link

It is your guarantee of service and satisfaction.

CANADIAN LINK-BELT CO., Ltd.

Manufacturing Plant and Offices at
265 WEST WELLINGTON ST.
TORONTO

Toronto.—Gelber Bros., 217 Richmond Street W., plan erection of five-story factory building.

West Toronto may possibly be chosen as the site for construction of packing houses by Armour & Co., Chicago, and the Matthews-Blackwell, Ltd. Total estimated cost, $6,000,000.

Gunn's, Ltd., have commenced construction of a new cold storage plant at an estimated cost of $500,000.

Welland.—Dillon Crucible Alloys, Limited, which recently began operations in Welland, having purchased the Quality Beds property, and having erected a number of new buildings, is now employing fifty high-class men and turning out two tons of high speed and carbon steel every day. The buildings erected were:—A milling or furnace building, 80 x 120 feet; a hammer shop, 80 x 160 feet, all steel, fireproof buildings. The original buildings are used for the annealing process and warehousing. These buildings and plant cost over $200,000.

Windsor.—A building permit has been granted to the Kelsey Wheel Co. for erection of addition to plant. Estimated cost, $15,000.

The municipality are considering the establishing of a modern municipal dairy plant. Estimated cost, $20,000. Ald. Wood.

Rumors that approximately $1,000,000 will be spent in construction of new manufacturing plants in this city during 1919 are current. Announcement that the Collapsible Rim Company, with $500,000 capital, and financed principally by local men, has already been incorporated, has been made.

The Auto Specialty Co., of St. Joe, Mich., will locate here and will start building as soon as the necessary by-law can be voted on by the people. The company expects to erect three buildings, each to cost $50,000.

Efforts to obtain tax exemption for construction of a factory on city property on Howard Avenue is being made by the Auto Specialties Company, St. Joseph, Mich. The company is asking the finance committee to put in by-law form an exemption ruling for $50,000 for ten years.

Wingham.—The Aero Cushion Inner Tire Co. are pushing the sale of stock in the Company with a view to locating in Wingham. If a suitable building can be procured and power furnished, this industry will mean profitable employment for from 30 to 50 hands. The president of the Company is T. R. Bennett and L. Kennedy is the secretary. With the practical knowledge and ability of the inventor of the new tire, Mr. Sherbondy, who will be the manager of the plant, the promoters are sanguine of success.

Wyoming.—Nicholson & Sons, of Oil Springs, have purchased site and are planning to erect a flax mill, which they hope to operate this season. The machinery of the mill will be run by hydro power.

Wyoming.—Libby, McNeil & Libby, pickle manufacturers, have secured a site in the village and will erect a salting station in the near future.

QUEBEC.

Lac Au Saumon.—The Salmon Lake Drive and Boom Association, Ltd., will probably erect a large wood and pulp plant.

Montreal.—Work has been started on the erection of a three-story brick factory for the Standard Confectionery Co., 620 Beaudry St.

Contracts have been let for a $50,000 extension to the factory of the La Parisienne Shoe Co., Limited, 614 La Salle Ave., Maisonneuve.

Erection of $150,000 abattoir is planned by the Montreal Abattoirs, Ltd., 139 Mill St.

Three Rivers.—The Tidewater Shipbuilders, Ltd., are entering business as manufacturers of marine boilers and engines and have erected a plant costing around $500,000.

Upper Bedford.—The Torrington Co., Ltd., successors to the Corey Needle Co., have plans out for an addition to their factory, 20 ft. x 125 ft., which they will build this spring. This will take care of their export business. They are at present making a million latch knitting needles per month, which is more than the normal consumption of these needles in Canada. They have already worked up a good export trade with England and South America and expect this business to increase in the near future.

SASKATCHEWAN.

Regina.—The Imperial Oil Company has recently purchased two blocks of lands in Eastview, Regina, having in view the extension of their housing scheme for their employees. This property adjoins the block of residences constructed last year on the east side of Laird and Young Streets. It is understood that the plan is to construct on one of the newly-acquired blocks of land thirty houses, leaving in the centre, a site for the erection of a hall to be used for social and recreation purposes.

Site has been secured by the Continental Oil Co., 1818 Cornwall St., for erection of plant. Estimated cost, $1,000,000.

Howard Smith Paper Mills, Limited, are announcing the completion of their new mill at Crabtree Mills, P.Q. At this mill they are now producing their well-known Progress Bond in white and six colors—buff, pink, green, blue, canary, and goldenrod. The new mill is equipped with machinery of the latest type, specially designed to make this grade of paper.

Benjamin



The above photograph illustrates the use, not only of **Benjamin Reflectors** of correct design and distribution for the class of work carried on,

but also of the

"Benjamin - Starrett" Safety Panels

in a large Canadian mill—(Canadian Cottons Ltd., Marysville, N.B.)—one of many others,

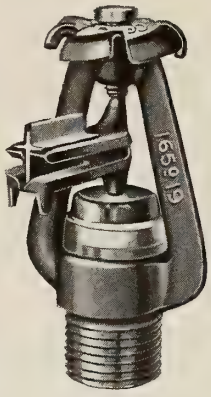
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Natco Hollow Tile

A third edition of the National Fire Proofing Co. of Canada's "Modern Buildings" has been published, giving views and descriptions of a number of private residences in different Canadian cities in which Natco Hollow Tile has been used. The series is prefaced with some remarks on the value of this material in building operation. The advantages of Natco construction for all types of buildings are very generally understood to-day. Natco Hollow Tile is a material that cannot burn. Neither can dampness, climate, temperature or age cause the slightest deterioration.

Industrial Housing

Manufacturers who may have in mind projects for housing their employees will find interesting suggestions in a booklet recently issued by the National Fire Proofing Company, with Canadian factory at Hamilton, Ont. The booklet describes and illustrates various housing schemes which have been worked out by industrial corporations such as the Bethlehem Steel Co., Mt. Hope Finishing Co., Remington Arms Union Metallic Cartridge Co., Goodyear Tire & Rubber Co., Crucible Steel Co., etc., and shows how the various products of the National Fire Proofing Co. can be effectively used in carrying out these schemes. It is a publication well worth having.

Leather Belting and Lace Leather

A handsome new catalogue has just been issued by the Beardmore Belting Co., Limited, dealing particularly with their pure oak-tanned leather belting and lace leather. Typographically the production represents the last word in catalogue making, while the contents are arranged, displayed and indexed in such a way as to make the publication of the greatest possible value. Views of the company's offices and factories in Toronto and Montreal and the big tannery in Acton West, Ontario, preface the description of the various brands of belting manufactured. The catalogue also deals with leather packings, belt dressings, belt cements and various other accessories, all of which are carefully described and priced. The whole extends to about 60 pages.

FOR SALE

One Hydro Extractor, Craig make; basket 17 inches depth, 44 inches diameter. Good condition. For further particulars apply Slingsby Mfg. Co., Ltd., Brantford, Ont.

One Rope Wheel, 10 grooves, 4 ft. 3 ins. diameter, 5 15/16 ins. bore. One Rope Wheel, 10 grooves, 8 ft. 6 ins. diameter, 5 15/16 ins. bore. 10 Manilla Ropes, 1¾ ins. diameter, 4-strand, each about 175 ft. long (spliced). In good condition.

100 ft. 3 7/16-inch shafting, and 6 hangers for same; also 500 ft. 1¾-inch Manilla Rope, 4-strand (new). For further particulars apply The Slingsby Manufacturing Co., Ltd. Brantford, Ont.

WRIGLEY'S

THREE FLAVORS

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—industrial trackage to every site—affording connection with Canadian and States transcontinentals.

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These and other exceptional advantages are offered manufacturers on Industrial Island

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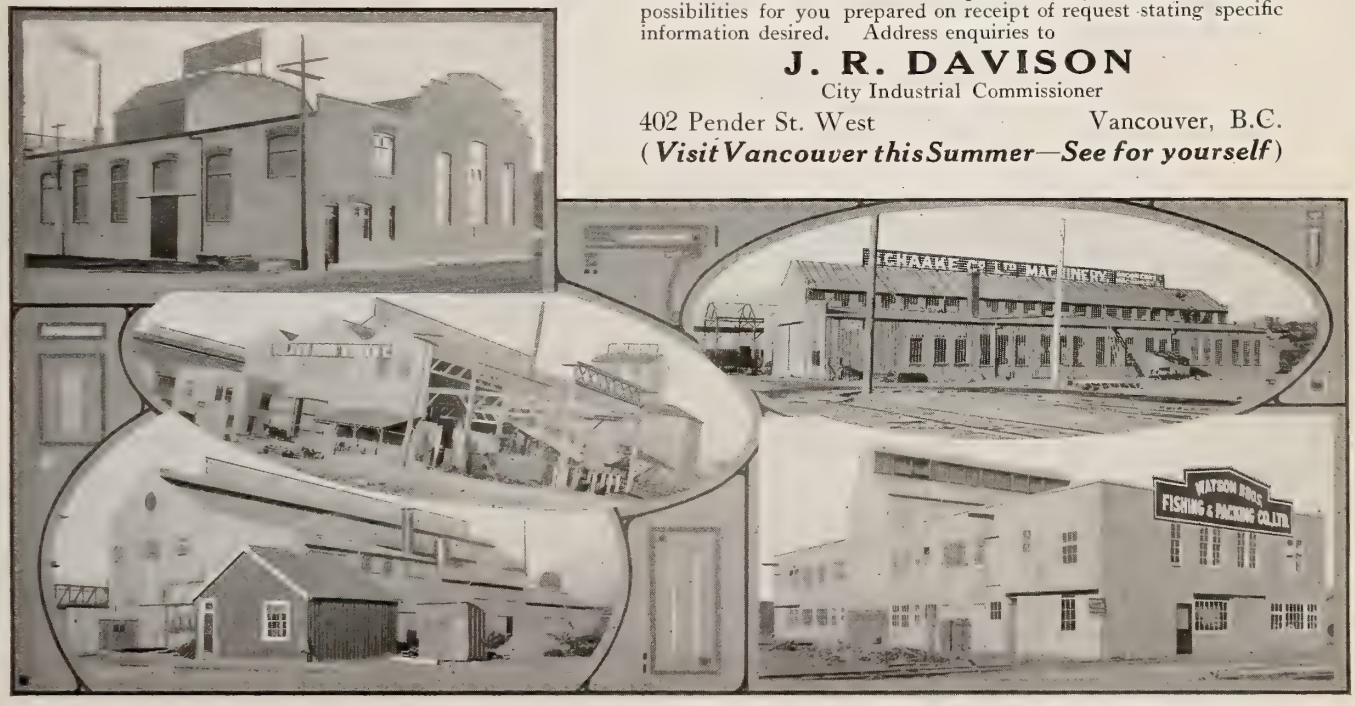
This tract was reclaimed by the Vancouver Harbor Commission and especially equipped for the purpose of affording industrial sites. It is under the control of this Commission.

Sites available on long lease at low rental

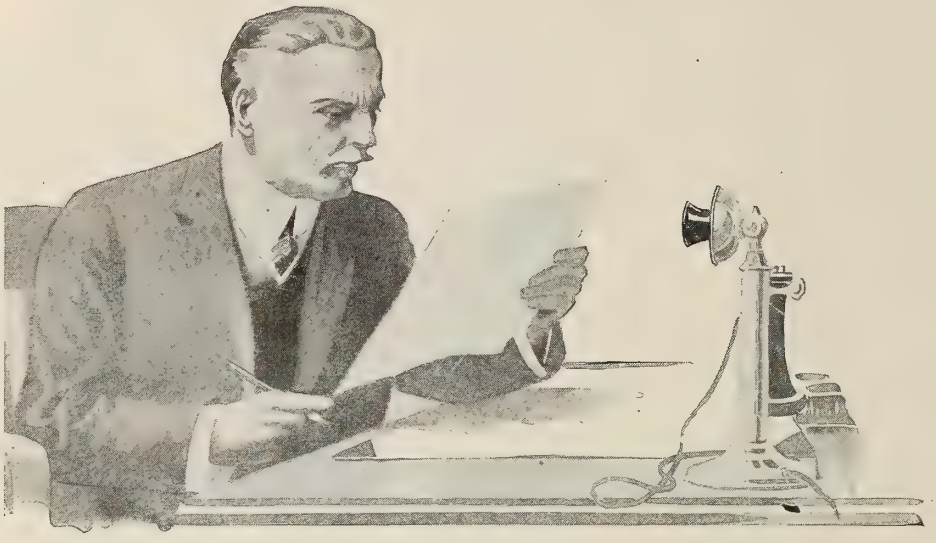
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A few of the Industrial Plants on Industrial Island. Practically all of these have been erected during 1918



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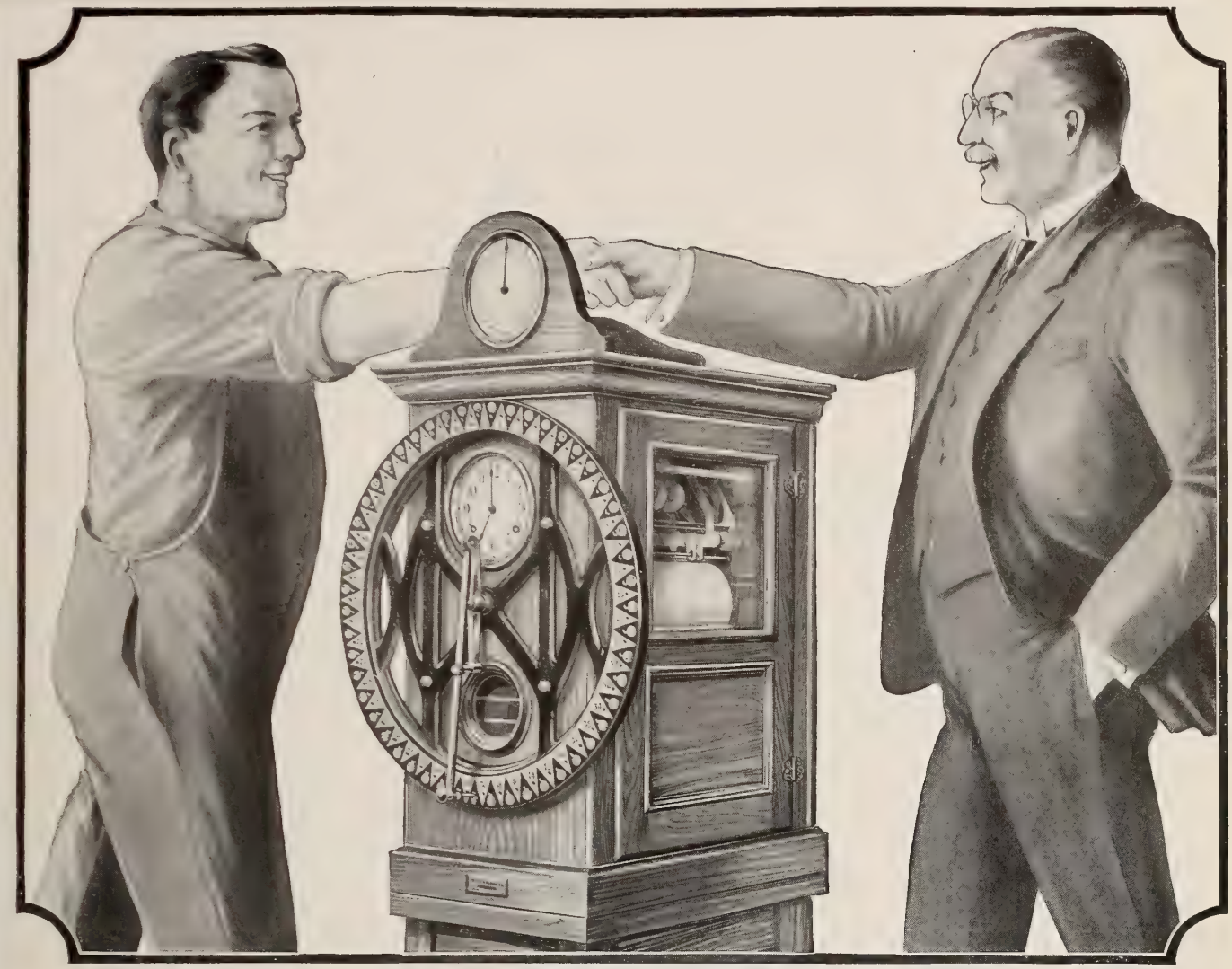
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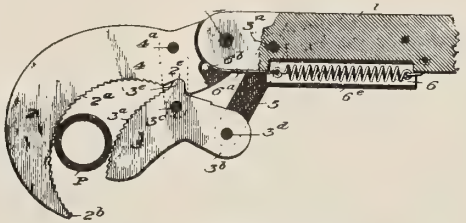
Royce and Campbell Avenues
TORONTO

Also at
Montreal, Winnipeg, Vancouver

Also makers of Dayton Scales and Hollerith Electric Tabulators

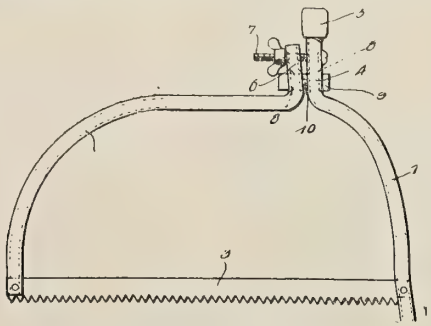
PATENTS FOR SALE

Patent applications through
Harold C. Shipman & Co.
Patent Attorneys - Ottawa, Canada



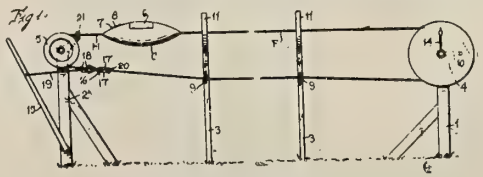
WRENCH

Above illustration is a novel improvement in pipe and rod wrenches, the object of which is to provide a simple, efficient, quick-acting, powerful gripping wrench which may be manipulated by one hand and which will not slip on the pipe or rod. Can. Patent No. 188,680, recently granted to Mr. William Riley, of Henry, South Dakota, U.S.A., is for sale.



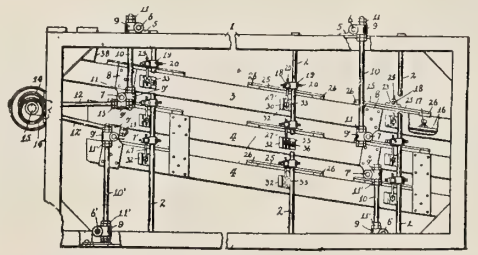
BUCK SAW FRAME

The object of the invention is to provide a saw frame which is constructed of metal and is substantially arched to give the greatest strength in the frame construction and to entirely eliminate any possibility of the frame construction becoming warped and in other ways causing numerous annoyances to the operator. Can. Patent No. 187,743 which has been recently granted to the inventor, Mr. D. W. Smith, 101 Fern St., Bangor, Me., U.S.A., is offered for sale or on royalty basis.



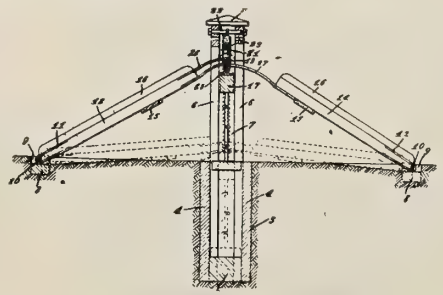
MAIL CARRIER

This invention is adapted for use in rural districts for transporting mail between a dwelling and highway. An indicator is connected with the operating means to show at one end of the line of travel of the carrier when mail or the like has been deposited. Can. and U.S. Patents are for sale. Jacob O. Hart, 692 Columbia Ave., Lancaster, Pa., U.S.A.



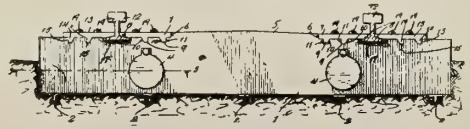
VIBRATING SHAKER-SCREEN

This invention is generally used for granular or floured substances in which the screens are mounted for vibratory movement and are additionally subjected to a surface jarring or shaking action by means of automatically operated oscillating rapidly-striking tappets. Can. Patent granted to Loyd C. Dibert, San Francisco, California, is for sale.



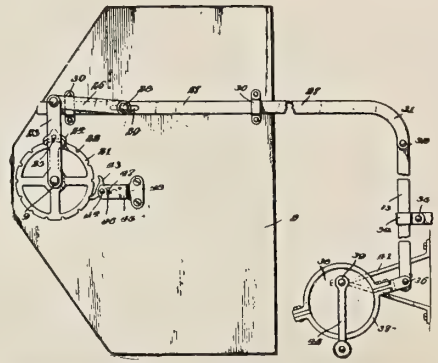
AUTOMOBILE GATE

This gate aims to eliminate the necessity of getting out of the vehicle to open and shut the gate, the gate being so constructed that when the automobile is driven up to it the gate will be pressed downwardly, permitting the vehicle to move along on its way when it will at once resume its former upright position. Can. Patent granted William H. Zorn, Harrisburg, Nebraska, U.S.A., is for sale.



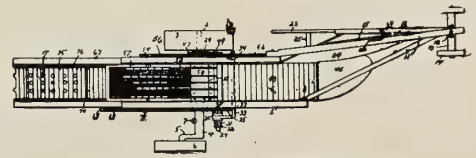
METALLIC RAILROAD TIE

Above illustration relates to metallic rail ties, and its object is to provide a simple and efficient tie which may conveniently support a rail in such a position as to prevent same from being accidentally detached therefrom and consequently prevent the rails from spreading. Can. Patent 188,413, granted to Mr. Daniel I. Cowgill, Lexington, Kentucky, U.S.A., is for sale.



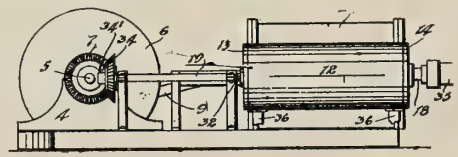
STREET AND STATION INDICATOR

This construction is an improved street and station indicator, by means of which the motorman can readily display the names of the streets and stations on a road as same are approached. Can. Patent was recently granted to Alonzo T. Goodman and Howard R. Eaton, Kill Buck, New York, who are open to dispose of their patent either outright or on royalty.



QUACK-GRASS DESTROYER

The machine is adapted to plow and remove the grass from the soil and pack the same upon an elevator. After the grass is collected it is carried to a point at the border of the field where it is destroyed. Can. Patent is for sale by Mr. Andrew Hanson, Clayton, Wisconsin, U.S.A.

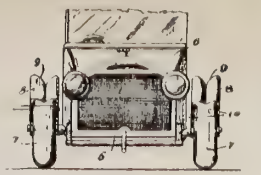


ENGINE VALVE

Above illustrates a valve applicable to steam engines, to do away with the various slide and rocker valves, valve gears and eccentrics now in common use on engines and substitute therefor a revolving valve of the barrel type, so constructed that it may be readily operated to reverse the engine when required. Can. Patent granted to Mr. C. F. Henry, of Bow Island, Alberta, Canada, is for sale.

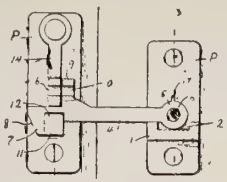
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MUD-GUARDS.



This invention relates to mud-guards for automobiles, motor-cycles or the like, which will drain off the muddy water splashed onto them, instead of allowing it to fall back on the wheels, as is now the case. Can. Patent 175,972 recently granted to Charles T. Pattinson, of Spinney Hill, Saskatchewan, Canada, is for sale.

DOOR-FASTENER.



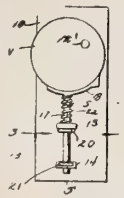
The illustrated Door-Fastener is especially designed and adapted for use in connection with sliding doors for freight cars, and is provided with means whereby the parts co-act in an automatic manner to effect the fastening of the door. U.S. Patent granted to Mr. Luke Daniel Reed, of Burnham, Illinois, is for sale.

SUIT OF ARMOUR

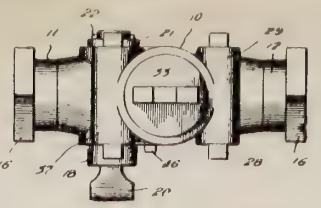


This illustrates an improved suit of armour for soldiers in general and particularly those in the first line trenches and by aviators, the object of which is to provide an improved, efficient and practical protection to the wearer's body. Canadian and United States Patents are for sale. Joseph C. Hawley, Blacksburg, Virginia, U.S.A.

WINDOW LOCK



This invention relates to window locks and provides a simple and effective lock which may be readily thrown into or out of operation, comparatively cheap to manufacture and should prove attractive to all manufacturers of hardware or small wares. Mr. Peter Zielinski, Armstrong Creek, Wisconsin, U.S.A., offers Dominion patent for sale.



COMBINED TURNING PLUG AND CHECK-VALVE.

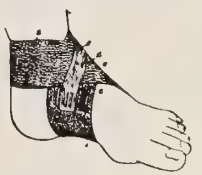
The object of this invention is to provide a valve-turning plug and a check which, in event that the device is interposed in a gas conduit or the like, failure of the gas flow through the conduit, will cause the check to automatically close, guarding against explosion due to escaping gas. Can. Patent No. 188,224, granted to Mr. Charles M. Wilson, 1120 College Ave., Elmira, N.Y., U.S.A., is for sale.



SOLDIERS' ARMOUR

A protector or shield for soldiers adapted to be readily transported and set up for use as a temporary barrier, behind which may be stationed for firing upon the enemy. This article may also be used as a bed, having a suitably water-proofed bullet persisting face. U.S. and Can. Patents are for sale. John Bilan, Flint, Michigan, U.S.A.

FOOT ARCH AND ANKLE SUPPORT

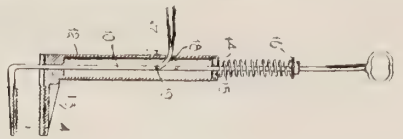


This invention is to provide an improved arch for ankle supports, simple and durable in construction, cheap to manufacture and arranged for convenient attachment to the foot so as to readily hold up the arch and to sustain the ankle without discomfort to the wearer. Can. Patent is for sale. Henry A. Bernstein, M.D., 139 West 119th St., New York, N.Y., U.S.A.

SOLDIERS' ARMOUR

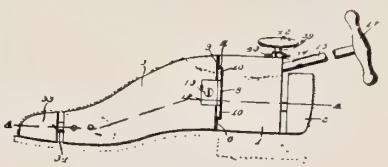


The object is to provide a shield that is light and readily carried by a soldier for protection from shrapnel or other missiles, provision being made for absorbing the shocks of contact. Can. and U.S. patents are for sale. John Bilan, Flint, Michigan, U.S.A.



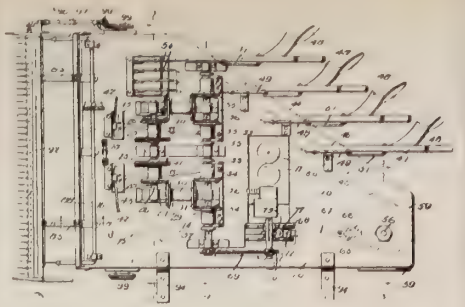
FIREPOKER AND CLINKER-PICKER

This simple and ingenious device provides a poker so constructed that it may be used not only for the ordinary purposes but for picking out clinkers. The poker has members slidably connected to each other and having co-acting jaws, the spring urging the jaws to a closed position, and means whereby the jaws may be moved away from each other, so that they may grasp an object. Can. and U.S. patents for sale. Franklin Binn, 120 Quarry Street, Trenton, N.J., U.S.A.



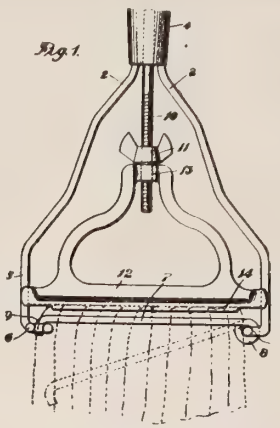
SHOE STRETCHER

This invention relates to shoe stretchers to provide a stretcher which not only stretches the last of the shoe laterally but will stretch same longitudinally. Article is comparatively cheap to manufacture, easily and quickly adjusted. Can. Patent for sale. Gustan W. E. Hohme, P.O. Box 36, Castor, Alberta, Canada.



POWER-DRIVEN FARM IMPLEMENT

This machine is guaranteed to cut all grasses and rake same, also to harvest all kinds of grain, including rice, wheat, barley, and rye. The machine has attachments for ploughs, harrows, binders or almost any known farm implement. Can. Patent No. 184,466 held by Mr. Patrick Powers, Memphis, Tenn., U.S.A., who is prepared to dispose of same.



MOP HOLDER

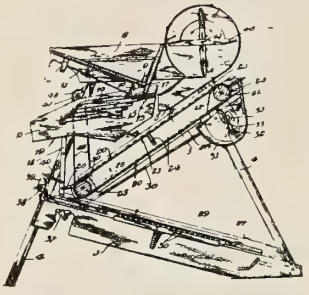
The above illustration embodies a novel means whereby the mop cloth can be quickly and expeditiously applied to and removed from position. The device is of such a character that it can be manufactured and placed on the market at a minimum cost. Can. and U.S. patent rights are offered for sale by Mr. T. E. Gavin, General Delivery, Peoria, Ill., U.S.A.

Manufacturers—Let us know what line of patents you are interested in, so we can send you copies from time to time.

(Continued on next page.)

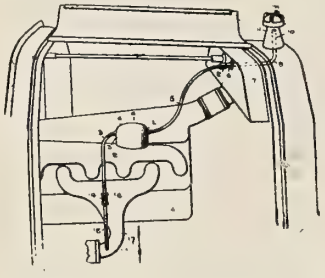
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PATENTS FOR SALE



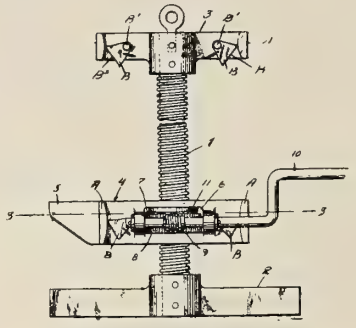
GRAIN SEPARATOR

Above invention relates to improvements in grain separators, the object of which is to provide an improved grain separator or fanning mill which is especially adapted for the separation of succotash. Can. Patent, recently granted on this invention to Mr. Henry J. Bot, Ghent, Minn., U.S.A., is for sale.



AUXILIARY ATTACHMENT FOR ENGINES

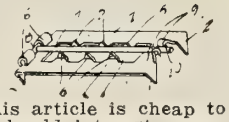
This invention relates to auxiliary attachments for engines, the object being to provide means whereby steam may be conveyed into the intake manifold of the engine and mixed with the hydrocarbon gas in its passage into the engine, so as to reduce the consumption of gas mixture. This mixture of gas and superheated steam serving effectively to prevent the engine from carbonizing and at the same time increase the power and efficiency of it. U.S. and Can. Patents are offered for sale. Messrs. Blomster and Schaben, Algona, Iowa, U.S.A.



LIFTING JACK

The above illustration relates to new and useful improvements in lifting jacks, the object of which is to provide a yoke or engaging member embracing a screw-threaded standard and carrying a lifting ring having screw-threaded engagement with the standard, and rotatably mounted within the yoke, with means carried by the yoke for rotating the ring, and a ball-bearing arrangement between the ring and yoke and to rotate the ring by worm gearing. Can. and U.S. patent rights are offered for sale by Mr. F. F. McBride, Medicine Hat, Alberta, Canada.

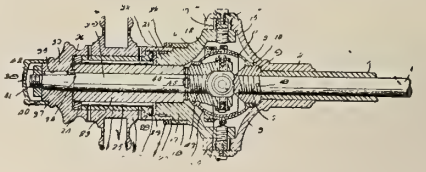
GARMENT FASTENERS.



This garment fastener will take the place of ordinary buckles on overalls and will securely fasten the ends of the straps. This article is cheap to manufacture and should interest manufacturers. Can. Patent for sale. Edward K. Lathrop, 70 Saratoga St., Springfield, Mass., U.S.A.

PATENTS Trade Marks, Design Patents, Copyrights

Being near the Canadian Patent Office, we are able to personally interview examiners, thus often getting broader claims and earlier allowance of your Patent. We have access to all Patent Office Records for making searches and report, and solicit the business of Manufacturers, Engineers and others who realize the advisability of having their Patent Business given PERSONAL ATTENTION by Experts at Ottawa.

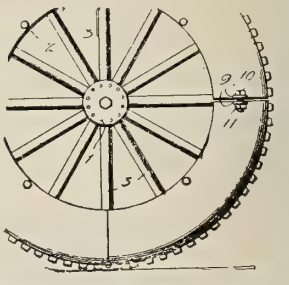


Above illustrates "Universal Joint for Front-Wheel Drives for Motor Vehicles," having an axle provided with a joint allowing the wheels to be turned and adapted for driving said wheels and free movement of the wheel regardless of its position. Can. Patent granted to Matt F. Ross, R.R. No. 2, Windfall, Indiana, U.S.A., is for sale.



MINE CAR COUPLING

Above illustrated construction was designed to prevent loss of life and danger incurred from run-away cars on mine slopes. This coupling can be attached to any type of mine or riding car and will automatically stop the car the moment anything goes wrong with the hoisting rope or ordinary couplings. Messrs. Mitchell & Carruthers, P.O. Box 544, Stellarton, N.S., Can., offer Dominion patent rights for sale.



This invention on tire protector shows a covering suitably bolted which will give a great deal more life to the tire, perfectly elastic and cheaply manufactured. Can. and U.S. Patents for sale by Mr. Charles Jordan, 168 Homewood Ave., Pittsburg, Pa., U.S.A.

Manufacturers interested in patents should have their names on our Service Dept. mailing list.

"CANADA'S LEADING PATENT ATTORNEYS"

Ask for our Booklet on Patents, "Patent Protection"

HAROLD C. SHIPMAN & CO.

PATENTS TRADE-MARKS. DESIGNS. COPYRIGHTS.

OTTAWA - CANADA

Branch Office Washington, D.C.

Associates All Foreign Countries

New Tariff Regulations

Export Licenses

Advices have been received by Mr. G. T. Milne, Montreal, and Mr. F. W. Field, Toronto, British Trade Commissioners in Canada, that the following additions have been made to the list of goods which may be exported without license: Fancy goods made of morocco and light leathers; iron and steel manufactures generally, except high speed steel and certain special articles; machinery of all kinds except textile machinery and machinery wholly made of brass or copper; toys and dolls; games of all kinds.

Lists of export restrictions recently removed: Binder twine, barrels and casks, boilers, chrome ore, chestnut extract cork, fuel economizers for boilers, goldbeaters skin, gluestock, dry white lead, hide clippings, resins, lead coated sheets, paraffin wax, pigskins, cast iron pipes, iron or steel wire, wire rope, quebracho extract, cast iron radiators, solid glucose, railway sleepers, or iron or steel, railway springs, railway wheels, axles and tyres, railway constructional material except rails, silk manufactures, spirits except whiskey, terneplates, tinplates. Import prohibition relaxed bacon, lard, hams, hardwood, the latter until January 1st. Import relaxations revoked licenses will be now necessary brooms, brushes, buttons, gloves of leather and fabric, gas mantles, vegetable tape cotton piece goods.

Statistical Classification of Imports

The group classification of imports as followed by the Customs Department in compiling statistics of imports and exports, has been sub-divided in considerable detail for the fiscal year which opens on the first of April, 1919. The object of this greater detail in tabulating statistics of imports is to afford a more exact gauge of the value of the domestic market in order that those interested may determine whether the "home" market is large enough to warrant manufactories taking up the manufacture of products corresponding to those imported.

To make these statistical tabulations accurate, importers and exporters will need to furnish exact descriptions of commodities on their import and export entries.

The Customs Department has circularized Collectors of Customs on this subject, directing them to enlist the co-operation of importers and exporters in furnishing on the import and export entries accurate descriptions of commodities with prescribed units of quantities.

For the information of manufacturers the following is quoted from the instruction of the Commissioner of Customs to his Collectors, viz.:

The country to be shown on import entries is the country from which the goods were shipped on their continuous journey of importation into Canada. On export entries it is the country of ultimate destination of the goods shipped from Canada.

The exact quantity of the merchandise entered must be shown clearly on the entry in terms of the unit of quantity required by the classification, and in cases where weight is required, *net* weight must be given.

No terms are to be allowed on entries which do not give a distinct description of the goods entered such as will enable the officers of this Department to determine the particular item in the tariff and classification which applies thereto. The following are examples of descriptions which are *insufficient* and which frequently occur:—

Machinery, manufactures of iron, electrical apparatus; drugs, n.o.p., wool fabrics, clothing, knitted goods, stockings, hats, unenumerated articles, lumber.

The classification contains several items covered by each of the above descriptions, and therefore a distinct and definite description is required in these and all similar instances. Trade names should not be used on entries unless accompanied by a specific description of the goods.

We believe manufacturers will be serving the best interests of the Dominion of Canada by heartily co-operating with the Customs Department in this matter.

Exports to Great Britain

The British authorities have removed all restrictions on importations into the United Kingdom of goods which are exported from and are the produce or manufacture of the Dominion of Canada, except:

(*a*) Gold or articles containing gold, except when consigned direct to the Bank of England;
(*b*) Spirits, other than brandy and rum;
(*c*) Hops.

The British authorities require as evidence of origin a sworn declaration on the invoice that the goods are the produce or manufacture of the Dominion of Canada.

The Commissioner of Customs has instructed Collectors of Customs that the required declaration may be sworn to before them.

The declaration, to be signed by the exporter or his agent, and written, printed or stamped on the invoice, may be in the following form:

I,....., exporter of the goods described in this invoice, hereby declare that all the said goods are *bona fide* the produce or manufacture of one or more of the British Dominion, viz: .....

.....
(Signature of exporter or his agent.)

(Customs)

(dating stamp) Sworn to at ..... this .....
day of ..... 191 ,..before me.

.....
Collector of Customs.

Dominion of Canada—Prohibited Exports

For export to the United States, the United Kingdom, France (including Alsace and Lorraine), Belgium, Italy, Japan, and their possessions and protectorates, Collectors of Customs at ports of exit are authorized to license shipments of all commodities except the following:

Gold coin, gold bullion, fine gold bars, Canadian silver coin, silver bullion, fine silver bars, cinchona bark and products, quinine and its compounds, cocaine, opium, opium gum and its products, wheat, wheat flour and farina, butter, cheese, sugars syrups and molasses, mill screenings and screenings of grain, canned salmon.

Individual licenses still are required for the exportation from Canada of the following goods to all destinations:

Gold coin, gold bullion, fine gold bars, Canadian silver coin, silver bullion, fine silver bars, cinchona bark and products, quinine and its compounds, cocaine, opium, opium gum and its products, wheat, wheat flour and farina, butter, cheese, sugars, syrups and molasses, mill screenings and screenings of grain, canned salmon.



Organization Depends on You

Your filing clerk is not responsible for the way your filing system works; it's not her fault if it's *fundamentally* wrong. And you certainly can't blame her if she holds you up for that "wanted-in-a-hurry" paper—to close some important point in a discussion—to get some needed information.

You're responsible for the proper organization of your office, and everything that's in it—including your filing system.

This is the case in your factory; every operation is planned for your men; shop practices are standardized; all the thinking is done in advance—to save time, delays and clogged wheels.

The only difference between factory and office routine is one of function—*for efficiency both depend on organization.*

So your clerks are only responsible for carrying out the details of filing. And if your filing system isn't fundamentally right—in other words if it won't yield up the paper you want when you want it—is it really fair to put the blame on your filing clerk?

The "Office Specialty" Direct Name System of filing correspondence is a steel-trap, error-proof system of filing. Your filing clerk can't go wrong. Everything's worked out to act automatically—it's organization based on simple, fundamental principles.

Hundreds of business men in every kind of business have found this system the end to their "filing-and-finding-of papers" problems. The same benefit it has brought to them is offered to you—and backed by time, labor and money saving proof.

If this "getting-papers-when-you-want-them" question is bothering you, get in touch to-day with our nearest Filing Equipment Store and let one of our service men demonstrate its particular benefits to you. Or if you want a little more information about it before doing anything write to the nearest store for descriptive folder No. 1862.

THE OFFICE SPECIALTY MFG. CO., LIMITED
Home Office NEWMARKET Canada

Filing Equipment Stores at:

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OFFICE SPECIALTY
LABOR SAVING OFFICE DEVICES
TIME IS MONEY
FILING SYSTEMS

303

SALE OF

SURPLUS MILITARY AND NAVAL STORES

DRY GOODS, CAMP SUPPLIES, FOOD HARDWARE, SCRAP METAL, JUNK

Cloth; new and second-hand clothing, equipment, hardware, tents, blankets, camp supplies, etc. Flour, jam, canned evaporated milk, tea, coffee, etc. Condemned clothing, junk, old brass, metals, leather, rubber, etc.

SALES WILL BE MADE BY SEALED TENDER

Persons desiring to tender are requested to communicate with **THE SECRETARY OF THE WAR PURCHASING COMMISSION, BOOTH BUILDING, OTTAWA,** stating the items in which they are interested, whether new or second-hand or both.

Arrangements will be made to have samples on exhibition at places throughout Canada; specifications, full details, and tender forms will be mailed when ready to those who have registered as suggested above.

IF INTERESTED PLEASE APPLY NOW

Institutions May Make Direct Purchase Without Tender

Dominion, Provincial and Municipal departments, hospitals, charitable' philanthropic, and similar institutions which are conducted for the benefit of the public and not for profit may purchase goods without tender at prices established by the War Purchasing Commission.

All communications should be addressed to the Secretary, War Purchasing Commission, Booth Building, Ottawa, who will be glad to supply lists and further details to those interested.

Wood Using Industries

As shown in a bulletin entitled "Wood-using Industries of Quebec," issued by the Forestry Branch, Department of the Interior, there are now eleven destructive distillation plants established in Canada, four of them situated in the province of Quebec. These latter consume about 144 cords of wood per day, or 45,000 cords (24,930,000 feet board measure) per year. It is estimated that the total consumption for Canada is over 500 cords per day.

The woods used in the province of Quebec in wood distillation are maple, beech, and birch, with a small quantity of other hardwoods. The raw material is cut in the form of cordwood, and is seasoned for a year or more in order to dry it out.

The products of these crude distillation plants are gases, crude wood alcohol, acetate of lime, creosote oils, hardwood tar and charcoal. The gases and hardwood tar are burnt under the retorts; part of the creosote oil is also burnt, while part is sold in the form of oil. A new use has recently been found as some of them have been demonstrated, as a result of experiments made by the Forests Products Laboratories of the Forestry Branch, in co-operation with the Mines Department, to be suitable for the flotation process of extracting ores, according to the bulletin.

BANK OF HAMILTON

47th ANNUAL STATEMENT

28th FEBRUARY, 1919

LIABILITIES

TO THE PUBLIC		
Notes of the Bank in Circulation		$ 5,354,902.00
Deposits not bearing interest	$22,798,810.45	
Deposits bearing interest, including interest accrued to date	41,578,247.68	
		64,377,058.13
Balance due to other Banks in Canada		64,634.33
Balances due to Banks and Banking Correspondents in the United Kingdom		101,331.50
Balances due to Banks and Banking Correspondents elsewhere than in Canada and the United Kingdom		658,997.19
Acceptances under Letters of Credit		171,596.87
		$70,728,520.02
TO THE SHAREHOLDERS		
Capital Stock paid in		3,000,000.00
Reserve Fund		3,500,000.00
Balance of Profits carried forward		85,114.59
Dividend No. 119, payable 1st March, 1919		90,000.00
Former Dividends unpaid		486.00
		$77,404,120.61

ASSETS

Gold and Current Coin	$904,821.72
Dominion Government Notes	7,526,768.00
Deposit in Central Gold Reserves	2,500,000.00
Deposited with the Minister of Finance for the purposes of the Circulation Fund	158,500.00
Notes of other Banks	527,477.00
Cheques on other Banks	2,028,187.96
Balances due by other Banks in Canada	16,443.35
Balances due by Banks and Banking Correspondents elsewhere than in Canada	797,568.15
	$14,459,766.18
Dominion and Provincial Government Securities, not exceeding market values	2,263,946.35
Canadian Municipal Securities, and British, Foreign, and Colonial Public Securities other than Canadian	8,498,738.19
Railway and other Bonds, Debentures and Stocks, not exceeding market value	434,653.04
Call and Short Loans (not exceeding thirty days) in Canada, on Bonds, Debentures and Stocks	4,421,377.83
Government Wheat Loans on Demand	5,918,000.00
	$35,996,481.59
Other Current Loans and Discounts in Canada (less rebate of interest)	37,719,328.04
Real Estate other than Bank Premises	418,275.38
Overdue Debts, estimated loss provided for	182,454.90
Bank Premises, at not more than cost, less amounts written off	2,600,000.00
Other assets not included in the foregoing	315,983.33
Liabilities of Customers under Letters of Credit as per Contra	171,596.87
	$77,404,120.61

PROFIT AND LOSS ACCOUNT

Balance at credit of Profit and Loss Account, 28th February, 1918	$232,421.80
Profits for twelve months ended 28th February, 1919, after deducting charges of management, interest accrued on deposits, rebate on current discounts and making provisions for bad and doubtful debts	571,226.10
Recovered from over-appropriations	100,000.00
	$903,647.90
APPROPRIATED AS FOLLOWS:	
Dividends Nos. 116, 117, 118, 119, at 12 per cent per annum	360,000.00
To Pension Fund	37,286.96
War Tax on Bank Note Circulation	30,000.00
To Patriotic, Red Cross and Relief Funds	18,150.00
Transferred to Bank Premises Account	173,096.35
Transferred to Reserve Fund	200,000.00
Balance of Profits carried forward	85,114.59
	$903,647.90

JOHN S. HENDRIE,
President.

J. P. BELL,
General Manager.

AUDITORS' REPORT

In accordance with the provisions of Sub-sections 19 and 20 of Section 56 of the Bank Act, we report to the Shareholders as follows:—

We have examined the above Balance Sheet with the books and vouchers at Head Office and with the certified returns from the Branches, and we have obtained all the information and explanations we have required, and in our opinion the transactions which have come under our notice have been within the powers of the Bank.

We have checked the cash and verified the securities of the Bank at the Chief Office and at several of the principal Branches during the twelve months covered by this statement, as well as on February 28th, 1919, and have found that they agreed with the entries in the books of the Bank with regard thereto.

In our opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Bank's affairs according to the best of our information and the explanations given us, and as shown by the books of the Bank.

Hamilton, 15th March, 1919.

C. S. SCOTT, F.C.A.
of C. S. Scott & Co.
E. S. READ, C.A.
of Webb, Read & Co.
} AUDITORS.

SALE OF

SURPLUS MILITARY AND NAVAL STORES

DRY GOODS, CAMP SUPPLIES, FOOD HARDWARE, SCRAP METAL, JUNK

Cloth; new and second-hand clothing, equipment, hardware, tents, blankets, camp supplies, etc. Flour, jam, canned evaporated milk, tea, coffee, etc. Condemned clothing, junk, old brass, metals, leather, rubber, etc.

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OFFICE AND FINANCE

The Control of Production Costs

How Efficient Factory Management Increases Both Profit and Sales

By ROBERT ARKELL

Of Thorne, Mulholland, Howson and McPherson, Industrial Advisors, Toronto

A COMMON form of salutation between manufacturers is "How is business?" which means really "What volume of orders is being received by the party addressed?" When competition was less keen than it is to-day, a man's profits could be judged very well by the amount of business he did, but to-day it is quite a common sight to see firms who are doing millions of dollars worth of business collapse overnight. This statement, then, resolves itself into a proof of the question, "What are we in business for?"

No man erects a plant and engages salesmen simply for the love of filling orders. It is the balance in his profit and loss account at the end of the year in which he is most vitally interested, for it is this upon which hinges his success or failure in the business world. It stands to reason, therefore, that unless a manufacturer's factory is efficiently managed, an abundance of orders will not enable him to pay dividends. In fact, one prosperous manufacturer was heard to say that getting the order was the smallest part of making a profit. In the first place, unless the order is put into work on time it cannot be delivered to the customer on time and a refusal of acceptance by the customer is likely to be made. In the second place, allowing that the order gets into the factory on time, if an unusual length of time is consumed in getting the order to the customer, the overhead on this particular order is increasing, for overhead is governed entirely by that one factor, "Time." Naturally, as the overhead increases profits decrease, so that one's factory must work as smoothly as a well-oiled machine if the best results are to be obtained.

Delay in the factory, it is safe to say, is responsible at the present time for a loss of easily one-third of the profit which it is possible to make. It is not sufficient to simply keep a certain amount of work ahead of each department. The company must see that the routing of materials and so on are conducted in such a manner as to keep each individual in each department busy. Where there are machines, it is a fairly easy matter to route the work in such a way as to dove-tail one with the other, but where hand labor alone is involved it becomes necessary to divide the workmen into gangs and sectionalize the work for each gang.

To realize the importance of this step, it is but necessary to go into the average factory and note the number of "floaters" there are. Employees, both male and female, are continually moving from department to department, asking questions from one another as to when certain orders are coming along or complaining about the condition in which other orders were received, and so on. In a properly organized factory, the planning department would see that the work when it leaves one department is in proper shape for the next department, and so on through to the shipping room.

It is realized, of course, that in small factories the planning department, as it is ordinarily understood, would be too great an expense, but the principles involved reman the same whether large or small—that is to say, the superintendent of a small factory, given a modern production system, adopted particularly to his particular needs, could easily route the work through his plant in a fraction of the time it would consume under any older method.

One may ask, "What is a modern production system?" Before the advent of production engineers, it was considered quite proper to turn the orders, as they came through, over to the foreman of each department and allow him to put them through in the order he thought best, with possibly a word or two of preference by the superintendent, but to-day the successful factory runs on a schedule as dependable as a railway, and it is but for the foreman to see that everything is kept running smoothly. In other words, the foreman of to-day is simply a combination of a disciplinarian and an order chaser, for he has no latitude whatever in saying what orders shall receive the preference. This naturally brings up the question of standardization, for it is realized that, unless our production methods are standardized, a great deal of time will be lost in dealing with different orders. When a manufacturer is in a special order business, he naturally allows sufficient margin on his costs to permit a reasonable profit after taking into consideration the delays occasioned by this class of work. On the other hand, however, many manufacturers will tell you that they make their products to stock, and then permit the salesman to sell several variations of this supposedly standardized product to the customer.

Standardization played a very important part in the great war which has just ended, and staandardization will play a still greater part in the commercial world from now on. Standardization simply means doing the same thing twice in

MR. ARKELL'S ARTICLES REPRINTED

Readers who have been following Mr. Arkell's series of business articles in INDUSTRIAL CANADA will be interested in hearing that eight of them have been republished in booklet form under the name of "Industrial Reconstruction." These deal with Organization, Production, Cost Control, Industrial Relations, Sales Development and Standardization. The booklet is published in attractive form by Thorne, Mulholland, Howson & McPherson, industrial advisors, Toronto, of whose staff Mr. Arkell is a talented member, and is being circulated with their compliments.

BANK OF MONTREAL

Established over 100 Years

Capital Paid Up - - $16,000,000
Rest - - - $16,000,000
Undivided Profits, $1,901,613
Total Assets - $558,413,546

BOARD OF DIRECTORS:

Sir Vincent Meredith, Bart., President
Sir Charles Gordon, G.B.E., Vice-President
R. B. Angus, Esq. — Lt.-Col. Molson, M.C.
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the same way. To many this would seem an absurd statement, but to one who has worked in scores of factories in different lines, it is not an exaggeration to say that production methods of the majority vary with the humor of the superintendent, foreman or the workmen.

One instance which occurred a short while ago is particularly interesting. The cost office was endeavoring to determine the cost of a certain article which was made from a supposedly well guarded formula, but upon balancing up at the end of the month they could not make their material balance with the inventory. Upon investigation, it was found that the superintendent of the factory had another formula for the same article, and as he was more of a practical man than the cost accountant, it was naturally concluded that the superintendent's formula was correct. When his formulas were used, however, and a balance found impossible, the cost accountant proceeded to the workmen themselves, who were in possession of still another formula.

The workmen, of course, were quite positive that their formula was the correct one, as this was the one that was responsible for the product which they were actually turning out. The superintendent, however, insisted upon the use of his formula, as he claimed that a satisfactory article could not be turned out with any other formula. The cost accountant, naturally, was in a quandary, and wisely withdrew until the smoke cleared away, but to his surprise none of the three formulas were passed, a totally new formula being worked up and put into force.

It is seldom that a mixup such as this occurs, but it is not uncommon to find a superintendent and foreman working at cross purposes through misunderstandings or indifference. It would pay the majority of manufacturers to pick up every written instruction in their factory and draw up entirely new forms, co-ordinating each with a view to eliminating any difference of opinion as to how the work should be handled.

The effect of such changes, as have been suggested, would be to materially reduce manufacturing costs, which in turn would naturally increase the profits, whether the manufacturer cared to reduce his selling price or not. It is a well known fact that a dependable production system makes a very favorable impression on a customer, and, therefore, naturally increases the sales. In addition, as already stated, it decreases the cost, as the work goes through much more smoothly and quickly. It is also an easier matter to determine the costs, and, therefore, to control them. One does not need to be a cost accountant to know that, where definite standards have been established for both labor and material, the costs are bound to be more uniform.

The only objection that I have ever heard in connection with a modern cost system is the fear of red tape, but if the system is founded upon proper standards and installed by a competent industrial accountant, red tape is the last item which could possibly enter into consideration. One cannot expect a bookkeeper, who does not understand the different stages of the manufacture of the product in question, to plan a cost system which is devoid of unnecessary work, nor can one expect a factory man to work out a satisfactory cost system when he does not understand the principles of accounting.

A proper cost system must balance the wages with the pay roll, the material with the inventory, and the overhead with the actual expenses incurred for the period under consideration, or it is of no value to the management. In addition, a proper cost system will enable a manufacturer to determine monthly, instead of semi-annually, how much money he has made or lost during the period. It is, then, a matter of extreme importance to every manufacturer to compute his costs accurately, and to do this, it is absolutely necessary to have it based upon the solid foundation of a modern production system and a proper set of standards.

B.C. Packers' Association

Profits Earned in 1918 Were Not Quite Equal to Those of the Previous Year

The statement of the British Columbia Packers' Association for 1918 shows profits for the year, after providing for depreciation of $435,359, which compares with a 1917 profit of $548,230, which sum, however, did not include provision for depreciation, which amounted in 1917 to $95,151, reducing the 1917 profit to $453,081, some $18,000 greater apparently than in 1918. The balance for the year is shown at $1,770,985, as compared with $1,621,967 the year previous, and the final balance, after various deductions, is $1,439,695, compared with $1,347,944. Of the deductions $110,000 for Dominion and Provincial taxes is the largest sum. The balance sheet shows total assets of $4,659,059, compared with $4,309,089, at the end of 1917.

Black Lake Asbestos

Increased Profit for 1918 Shown by the Annual Report of this Corporation

Profits of the Black Lake Asbestos Corporation in 1918 amounted to $152,512, comparing with $131,680 in 1917. The payments were made during the year at the rate of 6 per cent. per annum on the income bonds amounting to $71,490 as compared with payment of $59,575 the previous year. The company's current assets now amount to $278,977, compared with $244,526 in 1917. Total assets are now practically unchanged at $5,239,337. The sum of $60,084 was written off as depreciation on the plant. Operations were hampered by the scarcity of labor it is reported, but the development of the asbestos and chrome pits has been carried forward according to plan. The output is expected to show a decided increase for the present year, the directors announce, in spite of the somewhat unsettled market for chrome and asbestos.

Brandram-Henderson, Limited

Changed Their Fiscal Year to Conform With the Calendar Year

The statement presented at the annual meeting of Brandram-Henderson, Limited, was for the thirteen months ended December 31st, 1918, the change being made in order to make the fiscal year correspond with the calendar year. The net earnings of the company for that period amounted to $238,133, equal to $18,318 per month, against $221,429 for the previous twelve months equal to $18,452 per month. The only appreciable change in the company's expense figures was a decrease in the war tax from $31,917 in 1917, to $13,767 in 1918. The balance available for dividends amounted to $163,135, an increase of about $37,000 over the previous year, and after payment of preferred dividends, the balance left for common amounted to $128,135, equal to 13.2 per cent. against 9.5 per cent. in 1917.

After all payments, the surplus amounted to $89,335, as against $62,720 in 1917, and, with the carry-over from the previous year, amounted to $51,519, against $412,184, or $51.69 per share as against $42.50 per share in 1917.

A feature of the report is the announcement of a new investment in Alberta Linseed Oil Company, Limited, which the company has inaugurated and fully controls. This investment is carried in the statement at the exact figure involved in the purchase, despite the fact that dividends accruing from this subsidiary, up to December 31st last, amounted to $10,915. This return for a seven months' period demonstrates the high earning power of the investment.

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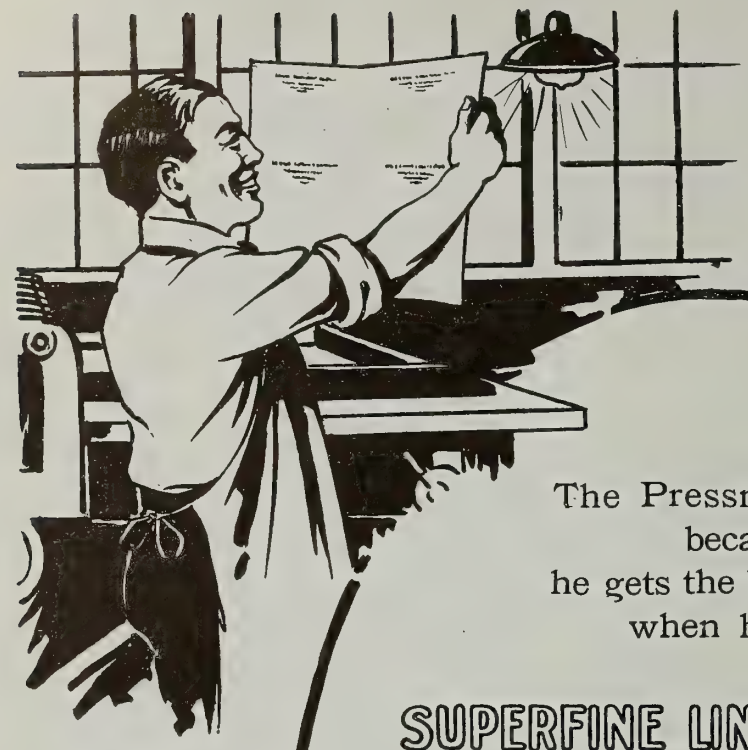
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Dominion Canners

A Slight Decrease in Profits for 1918 as Compared with 1917 was Recorded

Profits earned by Dominion Canners, Limited, in 1918, before deducting bond interest, but after providing for business profits war tax, were $745,324, compared with $800,529 in 1917. The bond interest paid during the year was $103,099 and dividends of 7 per cent. on the preferred amounting to $160,342, leaving $481,882 to add to profit and loss account, as compared with $277,601 the previous year, making the undivided balance now $1,472,221. In addition to this there is a reserve of $150,000 for insurance. The active assets are listed in the statement at $4,178,942; real estate, factories, patent rights, processes at $6,334,791, and total assets at $11,248,856.

The president, in his address to the shareholders, said in part: "Owing to poor transportation facilities and financial conditions the company was unable to do as large an export business as anticipated, but since the close of the war, transportation facilities becoming easier, this trade has opened up with bright prospects for the future."

The F. N. Burt Company

Business of the Company Was Largest in its History Last Year

The F. N. Burt Company, which is essentially a peace industry, showed great progress for the past year and a large increase in profits. These amounted in 1918 to $470,376, as compared with $369,999 in 1917, and $329,515 in 1916. The total amount to the credit of profit and loss, including a balance of $272,863 carried over from last year, was $743,240. Out of this $138,264 was distributed in dividends on preferred, and $45,000 in dividends on common stock, both items being the same as in previous years. $120,000 was set down to realty and plant reserve, $37,306 to tax reserve and $25,886 written off patents. The balance carried forward this year was $376,783, as against $272,863 in 1917. This balance is subject to deductions for U.S. excess profits tax on the Buffalo branch, but a reserve of $40,000 has been set aside to provide for income taxes, both in Canada and the United States. Total current assets amount to $1,502,731, and current liabilities to $747,559. This compares with the respective sums of $1,230,997 and $591,436 in 1917. Total assets now stand at $4,288,366 as compared with $3,884,685 a year ago. The business of the company was the largest in its history last year in spite of increased cost of production, handicaps due to the shortage of labor and other causes.

Riordon Pulp and Paper

Earnings During 1918 Were Not on the Same Large Scale as Earnings the Year Before

Gross earnings of the Riordon Pulp and Paper Co., which amounted to $1,943,651 in 1917, declined to $1,651,259 in 1918. Depreciation allowance was $221,446 less at $544,609. Net profits, after fixed charges and depreciation, amounted to $886,565 as against $1,032,942 in 1917 and $1,235,736 in 1916. Balance for profit and loss amounted to $366,565 during the past year as against $512,942 in 1917, and $963,236 in 1916. This added to the previous surplus of $1,851,812, brings present total surplus up to $2,218,377, the equivalent of $49.30 for each share of the common stock issued.

The statement of assets and liabilities show an increase in total assets of $2,345,283, the increase being made up as

The Merchants Bank of Canada

Head Office, MONTREAL **Established 1864**

Paid-up Capital	$ 7,000,000
Reserve Funds	7,437,973
Total Deposits (November, 1918)	141,000,000
Total Assets (November, 1918)	173,000,000

President: Sir H. Montagu Allan, C.V.O.
Vice-President: K. W. Blackwell
General Manager: D. C. Macarow
Supt. of Branches and Chief Inspector: T. E. Merrett

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Paid-up Capital	$5,000,000
Reserve Fund	$3,600,000
Total Assets as at Nov. 30th, 1918, over	$153,000,000

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follows: an increase of $1,795,559 in investments, one of $475,857 in inventories, one of $276,424 in accrued liabilities and a decrease of $16,500 in cash. In the investments for 1917, the total of $702,337 appears as investments in the capital stock of the Ticonderoga Company and in Dominion war bonds. In the 1918 statement the total of $2,497,896 includes common stock of the company, the income from which is available for bonus distribution to the employees, amounting to $290,880, and the capital stock of the Ticonderoga Company and war bonds of $635,475 and advances to the Kipawa Fibre Company of $1,571,541. Property valuation is given as $7,363,787, being a decrease of $200,000.

Death of H. L. Frost

One of Hamilton's Foremost Manufacturers and Leading Citizens Dies at an Early Age

Hamilton lost one of its foremost manufacturers and most public-spirited citizens on March 7, when Harry L. Frost, president of the Frost Steel & Wire Co., passed away in New York, following an attack of influenza. Mr. Frost was born in Danville, Ohio, in 1874, and was therefore in his forty-fifth year. Though as president of the Frost Steel & Wire Company he occupied a prominent place as a manufacturer, it was as leader of patriotic and philanthropic movements that he was best known. To him more than any other one man is Hamilton indebted for the building of the Royal Connaught Hotel. He was vice-president of the Hamilton Hotel Company, an ex-president of the Hamilton Board of Trade, chairman of the Trustee Board of the Methodist Deaconess Home, a member of the Advisory Board of the Children's Aid Society, an ex-member of the Board of Education, and a member of the Rotary Club. In recent years there has been scarcely a movement for the improvement of the city in which he did not take a prominent part. He not only was a liberal subscriber of money to all such movements, but gave just as unsparingly of his time and effort.

Clay Products Manufacturers to Meet

Annual Meeting of Canadian National Association Will be Held in Montreal in May

Monday, Tuesday and Wednesday, May 26, 27 and 28 are the dates for the annual convention of the Canadian National Clay Products Association, to be held in the Builders' Exchange Rooms, Montreal. An excellent programme has been prepared, which will include the following papers:

"Why Freight Rates are as they are and How Made," by Jas. E. Walsh, General Manager of the C.M.A.
"Transportation of Clay Products," by Millard F. Gibson, General Manager of the National Fireproofing Co.
"Use of Firebrick in the Steel and Clay Products Business."
"Sewer Pipe Investigations," by A. G. Dalzell.
"Railroad Kilns," by Walter S. Kuffer, of the American Dressler Tunnel Kilns Co.
"Steam Shovel Comparisons," by Wm. Burgess, Superintendent of the Don Valley Brick Works.
"Motor Trucks in the Clay Products Business," by Chas. Harrison and Horace Harpham.

It is expected that Joseph Keele, Chief Engineer of the Ceramic Department, Mines Branch, Ottawa, will contribute a paper. H. H. Hallatt, Chairman of the Tile Committee, and M. F. Gibson, Chairman of the Technical Education Committee, will give their reports. Thomas Kennedy will give the President's annual address.

The social features are being looked after by the Montreal Convention Committee, of which L. W. McArthur is Chairman. The present arrangements include a trip around the harbor, which is one of the finest on the continent.

The following are the officers of the C. N. C. P. A.: President—Thomas Kennedy, Swansea; 1st Vice-President, Wm. Burgess, Todmorden; 2nd Vice-President, Ryland H. New, Hamilton; 3rd Vice-President, G. Angus German, Toronto; Secretary-Treasurer, Gordon C. Keith, 32 Colborne St., Toronto; Councillors: Chas. B. Lewis, Walter Clark, John S. McCannell, T. H. Graham, Chas. A. Millar, J. Edward Frid, Andrew Dods, and N. T. Gagnon.

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To those interested we will be glad to forward ground and building blue prints, inventory of plant equipment, including machinery of all descriptions, together with complete office and housing furniture, etc., all in first-class condition.

Tenders wil be received for any part or all of these plants' equipment, as well as the land and buildings thereon erected. We are not setting a price on this "Manufacturing Opportunity." Write for full particulars, investigate and—

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Mark in space provided what you would be most interested in. This will facilitate supplying you with full information promptly and without obligation.

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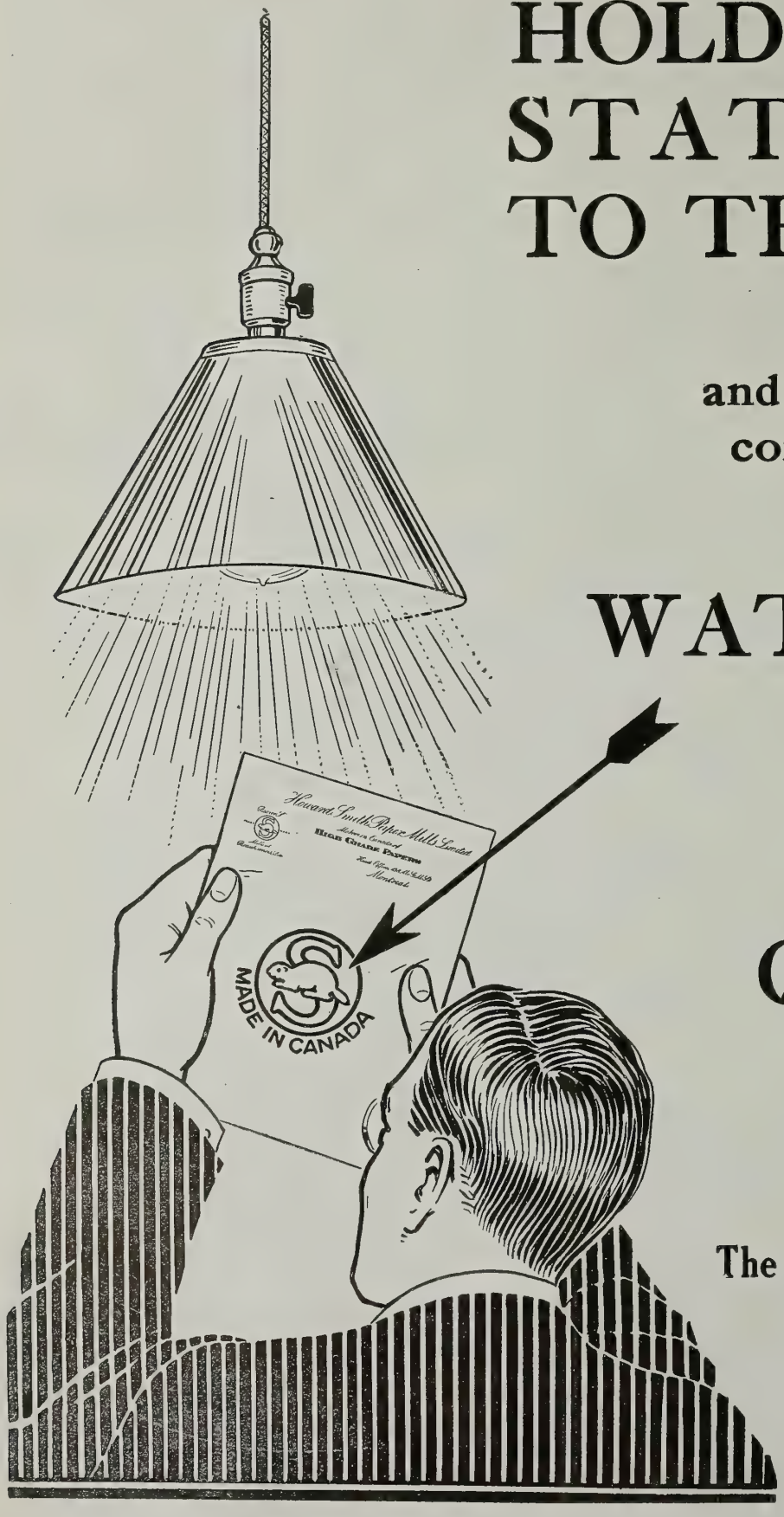
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The correct basis of valuation for insurance purposes is the present cost of reproduction new, with deductions for depreciation, however caused. A more conservative basis may be adopted for accounting, cost finding and financing. Depreciation, which is a subject of much interest to bankers, should be estimated in detail, and in accordance with the best appraisal practice.

A business with a detailed, authoritative record of its plant values is apt to receive more favorable consideration from bankers and other financiers than one not so up-to-date. Telephone or write for further information.

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NOVEMBER	8.3%	37757	47518
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McKinnon Industries Ltd.

St. Catharines, Ont., Canada



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The Sky-line of Vancouver's Business Section

British Columbia's Industrial Expansion

A Review of Recent Outstanding Developments in the Field of Industry—Some of the New Industries that Have Been or Will be Established in the Province—Conviction Growing that British Columbia Can Stand on Her Own Feet Industrially

By J. REGINALD DAVISON
Industrial Commissioner, Vancouver

THE outstanding feature of the industrial situation of Vancouver and British Columbia, of late has been the very remarkable expansion in the aeroplane spruce industry, and coupled with this, the continued development of shipbuilding. North of us, where the largest and best stands of the British Columbia or "Sitka" spruce are found, there was feverish activity last year in getting out timber. Under the double spur of the need for war purposes and the profits entailed, old and new logging companies threw every available man and machine into the work, with the result that since the Imperial Munitions Board initiated in 1917 spruce production for aeroplane construction, there has been cut in British Columbia over 60,000,000 feet. In addition to camps on the Queen Charlotte Islands, operating districts were established at Victoria, Vancouver, Quatsino, Ocean Falls, Swanson Bay and Prince Rupert, and altogether there were 69 camps in the province and over 3,000 men engaged. Only 15 per cent. of the tree is suitable for aeroplane stock, but the balance of the spruce goes into the pulp industry. Of the British Columbia wood used in aeroplanes about 70 per cent. is spruce and 30 per cent. Douglas Fir.

During 1918, shipbuilding, begun practically in 1917, went on apace; up to the first of October the number of vessels of wood and steel launched was 52, totalling 175,600 tons, and the indications are that this total will be much exceeded during this year. In addition to the ships under construction and contracted for at the above date, new contracts have been signed and further contracts are under negotiation, which if secured, will result in a much larger shipbuilding manufacturing programme than we have yet enjoyed on this coast. The Dominion Government has placed orders for ten steel steamers here, four of 10,000 and six of 8,100 tons each, and work is rapidly progressing on the order for forty wooden steamers for the French Government, ten for the Belgian Government, and nine wooden schooners for Norwegian firms. In addition to these vessels the local yards have been busy with smaller craft, such as ocean-going tug boats, cannery tenders, power cargo boats, scows, etc., which have been in keen demand for handling the increased coastwise trade here, and some have been sold for service in the United States and Australasia. A further contract for steel steamers for the Norwegian Government has been announced; these to be built at Prince Rupert by a Pittsburg Company, and at the time of writing negotiations are about completed for another yard for steel vessels, located on Vancouver harbor.

The great activity in shipbuilding and taking out aeroplane spruce has had its results in lumbering and other industries. During the earlier part of 1918 all the mills of the Province were exceptionally busy, and found ample markets locally in the prairies and in foreign trade. In the last quarter of the year the poorer crop yields in parts of Alberta and Saskatchewan lessened the demand from that source, and the embargoes to the United States had the effect of very materially lessening the output of both lumber and shingles. The added construction of vessels and increase of tonnage will be a benefit to this industry, and signs are

not wanting that the lumbermen are getting ready to compete more strongly than ever before for foreign trade.

In the mining industry there has been corresponding activity, and at the time of writing results are expected to be greater than 1917. The low price of gold, the increased cost of supplies, and the labor shortage have been the chief obstacles, but increases are shown in coal, copper and other metals. Some outstanding events of the year are the discovery of valuable deposits of platinum, manganese, tungsten, graphite, and other minerals. Talc is being shipped, new soda deposits are now being worked, and of intense interest to British Columbia is the fact that shipments of iron ore to a plant in Washington are made. The Provincial Government has undertaken a more active policy in regard to mining, one which should assist in bringing the industry more to the fore. The Granby Company is undertaking to make their own coke from Vancouver Island coals, with the use of beehive ovens. By-products hitherto not recovered should add to the list of manufactures of the Province.

Developments in Pulp and Paper

Along general lines, the industrial situation in British Columbia and at Vancouver has shown a steady improvement in 1918. In pulp and paper manufacturing, the mills have been kept going at top notch speed throughout the year, and even then they have not been able to keep pace with the orders ready to be placed. A new development of note is the fact that for the first time in British Columbia, grades other than newsprint have been made. The Pacific Mills have begun and perfected the manufacture of Kraft wrapping paper which is acknowledged to be of the best quality.

The preservation of foodstuffs, both from field and sea, has shown a steady growth in the Province, and canneries and evaporators put up increased quantities and more varieties than ever before. The yield of fruits and vegetables has on the whole been good, and in spite of the shortage of some varieties of salmon, the total output of fish was again larger, when we include the catch of herring, halibut, etc. Of great interest is the impetus which has been given to the fresh and frozen fish business of the coast which showed a decided gain over any previous year.

More Wood Products Plants

In other staple lines new plants were opened during the year, but the, to us, most encouraging sign has been the number of industries established which are using raw materials hitherto untouched, or using old material in a new way. Of the latter, an instance is the increasing number of factories for making wood products. Where we, only five or six years ago, shipped away our lumber to be made up into finished goods elsewhere, and even imported manufactured products of wood, we now are completing the manufacture, to our own financial gain. There are now a score of firms making boxes, crates, sash and doors, toys, pails, barrels, baskets, piles, handles, matches, barrows, tanks and even houses, barns, granaries, etc., which are ready to erect.

Another example of interest is the canning of whale meat, a process which has made a valuable addition to the meat supply in these days of shortage. One whale will yield from 3 to 12 tons of prime meat, and one company on the west coast caught nearly 1,000 whales during the 1918 season.

Of the former class, the establishment on Vancouver's inner harbor, of a plant for the fixation of atmospheric nitrogen is an event of great interest and importance not only to Vancouver, but to the whole of Canada when we recall the fact that the building and operating of such plants has been judged of such urgent national importance to the United States that $20,000,000 was voted to establish them. It is a

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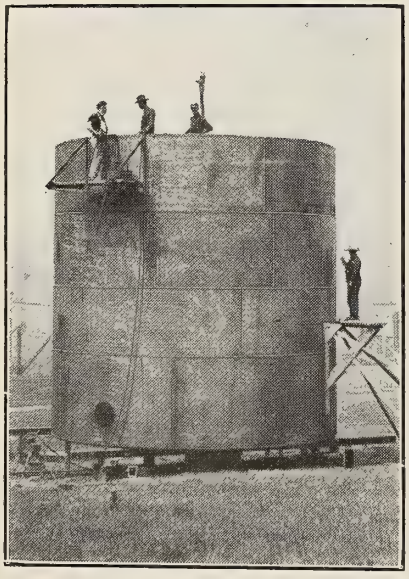
matter of congratulation that such an undertaking has been begun at another point in Canada by private enterprise. It is especially gratifying to this department that the inherent advantages of Vancouver for such an industry, which we have urged and worked on for several years, should be recognised and taken advantage of. Electric furnaces are being built for the production of nitric acid by the Arc process. The initial consumption of power will be 3,500 kilowatts, and it is expected progressively to increase this consumption. The plant is being constructed with a view to the production of agricultural fertilizer and is the first electro-chemical plan in Western Canada.

Other sea products have been put to use—a plant to manufacture dog fish and shark liver oil and fertilizers has been so successful that it will be enlarged, and two plants have been established to utilize shark skins for leather. Fish waste is more and more being used to make poultry foods and fertilizers.

The outlook for the future is most hopeful. British Columbia is noted for its vast store of natural wealth, but as yet many forms of this have, because of physical difficulties, been unavailable for manufacturing. Thousands of tons of sulphite liquor waste from the pulp mills, have been pouring into the sea. The problem of a commercial process for recovering alcohol from this would seem to be reaching a solution.

Mill Waste Put to Use

A new process, which shows well in tests, has been invented by a British Columbia engineer for turning, at a low cost, the mill waste hitherto destroyed by the sawmill burners in enormous quantities, into an excellent smokeless fuel which will stand handling. This same waste may be turned into ethyl alcohol and this question is being taken up. Each month sees some advance made toward the solution of such problems. It is expected that the paper industry will be extended by the manufacture of many more kinds of paper; that more and more articles will be made from wood and from built-up stock, including three and five-ply veneers and bigger stuff, which offers great possibilities; that plants for extracting and utilizing vegetable and plant oils, and for the combining of many raw materials from our own Province and from abroad into finished manufactured goods, will be located here. But best of all, is the growing conviction of our business men, convinced by education and by the lessons of the victory loans that British Columbia, like Canada, must and need no longer look to be pap-fed from abroad, but can stand on her own feet to establish new industries and provide the money and energy for the development of our City and Province.



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Fire Waste in Canada and Its Prevention

(*Continued from page* 66.)

or provincial fire marshal so that correction may be obtained. A small addition to an insurance rate for the maintenance of a fire hazard in a building may justify an insurance company in carrying the risk, but it does not justify the company to the Canadian public who pay the loss. The property-owner, whose sole idea of safety is a lower insurance rate, must be taught the duties of Canadian citizenship by more effective means.

Both the fire departments and the insurance agents are local, their consciousness and viewpoint are not concerned with the problem of fire waste outside their own particular locality. They are separate, detached, unorganized units like army corps without a base. Here arises the opportunity and responsibility of the province as the co-ordinating and legislative unit. The office of fire marshal should be efficiently organized in every province and vested with authority to enforce all statutes, ordinances and by-laws relating to fire and and fire prevention. There is no logical reason why every measure affecting fire waste should not be incorporated into one general fire prevention law forming minimum requirements for the entire province. This law should be enforced locally by the municipal fire departments under direct authority from the fire marshal or by an official appointed by the local authorities in places where no fire department is maintained. The fire marshal should, in a general way, supervise all inspection work, should issue final orders for the removal of dangerous conditions and should be empowered to cancel or suspend the insurance upon property pending the carrying-out of his orders. With these measures in force, I predict a reduction of at least fifty per cent. of the present fire loss. There is no mystery in preventing fires. Every building in Canada can be made reasonably, if not absolutely, safe. The property-owner who insures to cover his neglect is not gambling with the insurance companies; he is staking his self-interest against the common good in a game where the public always loses.

A Matter of Tactics

Having established in our local fire departments and provincial fire marshal departments the legislative and administrative machinery necessary to deal with fire waste conditions, the final question for consideration is the plan of attack. Here is the point where we have always failed. Success in reducing fire loss is a matter of tactics. Back of the local and provincial forces we need a fire prevention bureau of the Dominion Government to take the national view and to co-operate with the provincial departments in formulating a uniform plan of action. At the present time, all authorities



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agree upon one point—something must be done! That is so much gain. The next step is—what must be done? In attempting to answer that question many palliatives have been suggested, but no solution. The consensus of opinion is that fire prevention is a matter of elementary education and that fires will miraculously cease by placing text-books in the hands of school children, using moving picture films in theatres and writing newspaper articles dealing with the dangers of fire. That such efforts are fore-doomed to failure is obvious. Are school children or the class of people which frequents moving picture theatres responsible for Canada's fire waste? Records over a number of years show that more than 65 per cent. of the total fire loss in Canada occurs in less than 5 per cent. of the fires. Although in the first ten months of the present year, 15,900 fires entailed tn aggregate loss amounting to $28,443,200, more than $22,650,000, or 78 per cent., of that loss was caused by 246 fires. Thirty-three fires in manufacturing plants alone were responsible for a loss of over $10,000,000 or more than one-third of the total for the Dominion. The records of any city or town will specifically illustrate the point I am seeking to emphasize. For instance, in the city of Ottawa, the total fire loss during he past ten months amounted to approximately $550,000. Over $475,000 of that loss was occasioned by four fires. Apart from this, the property loss in 363 fires was less than $75,000. That is the crux of the fire waste situation. It presents a point for attack where success is assured. To substantially lessen the fire loss in Canada without useless expenditure of time and effort, it is not essential to spread our energies over the entire field and attempt the herculean task of preventing all fires. We can obtain immediate results by the application of our corrective efforts to the 5 per cent. which includes the class of property where extensive losses are possible. A conflagration of magnitude cannot originate from an isolated barn, nor a $100,000 loss occur in a $1,000 dwelling. While fully appreciating the desirability of protecting women and children from the incendiary match and inducing householders to maintain reasonable cleanliness in cellars and basements, I do not hesitate to assert that these methods will never touch the fringe of the situation in the present generation. If the 12,000 dwelling fires which occur every year could be eliminated the actual fire loss of the Dominion would be decreased by less than five per cent. On the other hand, if some 300 fires which annually damage large mercantile establishments and manufacturing plants could be prevented, at least 65 per cent. of our fire waste would be avoided. Any education or legislation to be effective must be directed, therefore, toward the real offenders—the business men of Canada. Through insurance channels, they have hitherto evaded responsibility. Now that the future prosperity of the country is largely in their hands, they cannot with clear consciences neglect their public duty, nor longer permit the eight million people of Canada to bear the burden of their neglect and be indicted before the world as a nation of careless spendthrifts.

Potential Forces Awakened

In bringing the subject of fire waste before you, only its economic aspects and the need for measures of control that will reach the root of the problem have been presented. In the ultimate analysis, the whole question is indissolubly interwoven with the character of our people. That fact promises the solution of the problem. In the past, we may have been the most careless people on the face of the earth, but vast potential forces in our national life have been awakened and are vitalizing our social activities. Necessity has destroyed many shibboleths and rent asunder time-honored precedents. The sacred doctrine of individual rights, so long held in-

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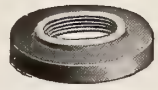

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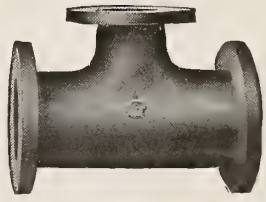
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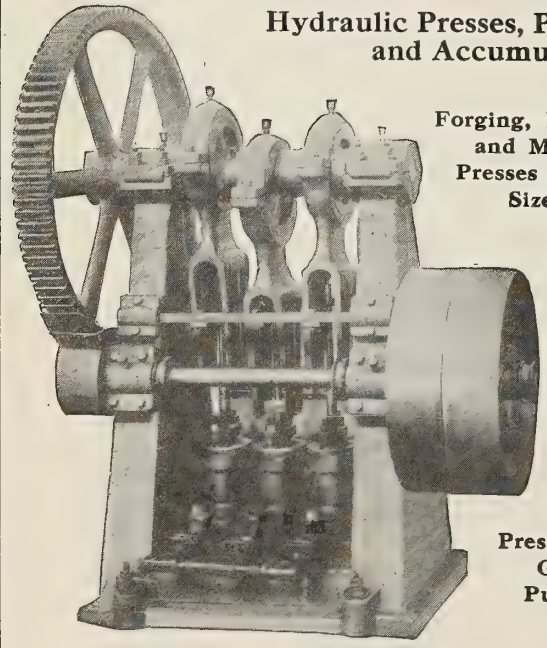
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violate, has proved infinitely vulnerable when it affected the well-being of the whole people. I venture to assert that any Government in Canada could, to-day, enforce fire-prevention laws that would have raised a storm of protest a few years ago. The public is more receptive of restraint and less suspicious of drastic changes. Civic consciousness is becoming more than a phrase. There is a growing feeling that every individual is responsible to the collective life. The challenge to build a greater and a nobler Canada has come to us from the poppy-strewn fields of Flanders, the scarred hillsides of Gallipoli, and the burning deserts of the distant East. We have heard the challenge and we cannot but respond. In the complexity of the problems that encircle us, our individual efforts may appear futile. As a fraternity, however, the Canadian Manufacturers Association can influence and inspire a national efficiency that from sea to sea shall stand as living testimony to its service.

At the conclusion of Mr. Smith's address, the following resolutions were unanimously adopted:

Appreciation of Conservation Commission

Resolved, that the Maritime Branch of the Canadian Manufacturers Association and associated bodies in joint conference assembled herewith records their appreciation of the work being carried on by the Dominion Commission of Conservation in attempting to arouse public opinion throughout Canada in respect to our deplorable losses by fire and the manner in which it is assisting, with technical advice, municipal bodies and property-owners wishing to improve the protection of cities, towns and individual properties from fire and,

Further resolved, that a copy of this resolution be sent to the Acting Premier of the Dominion Government.

Advocate Fire Marshals

The Maritime Branch of the Canadian Manufacturers Association and associated bodies in joint conference assembled view with alarm the rapidly increasing waste and destruction of Canada's national wealth and resources by fire and the crippling tax imposed upon the industrial and commercial property through excessive fire insurance rates and hereby resolve that,—

Whereas, fire waste in Canada far exceeds per capita that of any other country in the world, mounting to over $30,000,000 in 1918, and

Whereas no relief from the burden of high insurance charges can be expected until fire waste declines, and

Whereas the majority of fires in Canada is caused by individual carelessness, over insurance and arson,—

Be it resolved that the Provincial Legislatures of Nova Scotia, New Brunswick and Prince Edward Island be urged to enact legislation establishing the office of fire marshal in each province respectively, the duties of such office being the investigation of all fires, the prosecution of incendiaries and the inspection of property in order to correct and remove fire dangerous conditions, and,

Further resolved that a copy of this resolution be sent to the Premiers of the Provinces of Nova Scotia, New Brunswick and Prince Edward Island, and also to all commercial organizations in the Maritime provinces.

White spruce is gradually taking the place of pine for lumber. It is also the chief source of pulp supply. In 1916 the value of the spruce lumber cut in the Dominion was $21,201,198. The value of white pine lumber cut in 1916 was $14,957,048, and that of other lumber cut in that year by kinds as follows: Douglas fir, $8,070,200; balsam fir, $2,679,494; hemlock, $2,583,566; yellow pine, $1,455,396; cedar, $1,666,455; birch, $1,478,970; red pine, $1,175,835; tamarack, $630,642; jack pine, $652,353; maple, $639,182; basswood, $373,592; elm, $324,582; poplar, $124,251; cottonwood, $60,853; aspen, $51,151; poplar (balsam), $12,587; ash, $126,608; beech, $102,762; oak, $92,541, as given in a bulletin issued by the Forestry Branch, Department of the Interior.

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BUILDING	OWNER	LOCATION	APPROX. VALUE
Extension to Plant	Ford Motor Co.	Ford, Ont.	$65,000.00
Shot Tower	Peters Cartridge Co.	Kings Mills, Ohio	117,000.00
Primer Building	" " "	" " "	48,000.00
Miscellaneous Work	" " "	" " "	20,000.00
Extension to Roundhouse and Machine Shop, etc.	Canadian Pacific Railway	John St., Toronto	64,000.00
Cooler Building	Harris Abattoir Co.	West Toronto	90,000.00
Fire Loss Repairs and Extensions	" " "	" "	56,000.00
Extensions to Plant	Dominion Forge and Stamping Co.	Ford, Ont.	43,000.00
New Factory	Ideal Fence and Spring Co.	Windsor, Ont.	86,000.00
Extensions to Plant	Kelsey Wheel Co.	" "	3,200.00
Extension of Power Plant	Canadian Salt Co.	" "	3,000.00
Factory Building	Hiram Walker Metal Products Co., Ltd.	Walkerville, Ont.	63,000.00
Factory Buildings	Commonwealth Chemical Co.	" "	17,000.00
Gas Producer Building	Dominion Glass Co.	Wallaceburg, Ont.	6,300.00
Condenser Tank	Public Cold Storage Co.	Toronto, Ont.	10,000.00
Ice House	Canadian Pacific Railway	West Toronto	33,000.00
Ice House	" " "	North Toronto	2,000.00
		Total	$726,500.00

Of this total $500,000.00 worth of work was done on a percentage basis.

Every one of the above contracts was obtained, because we had previously given satisfaction on other contracts for the same owners.

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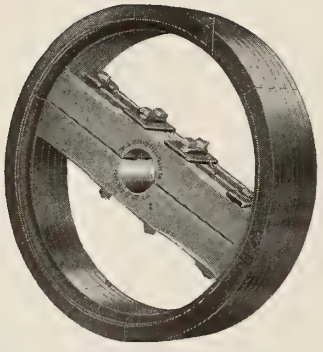
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The A. Bernard Industrial Co

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Inspection as a Means of Fire Prevention

(*Continued from page* 62.)

The brigade will be made up into companies of about six men in each. Drills are held at least twice a month, preferably every week, and men paid for each turn out. In carrying out the drills, same should be held at a different location each time in order to familiarize the men with all locations and conditions.

Before holding a drill the fire chief should decide on some plan or assumed location of a fire. Perhaps the site will be the roof of some particular building. Hose will be run up, properly strapped; in good weather water turned on. Then it will be assumed that a certain length of hose is burst, water shut off and the length changed as quickly as possible. The burst length is rolled up, female coupling inside, as a sign that the length is out of business. Next week the brigade will form up in companies, and one or two men picked out to operate chemical extinguishers. A simple hose coupling and uncoupling drill will next be held. Laying lines of hose from different hydrants to see how much is required to cover different buildings is of value, as it is surprising how short you find your hose is. Hose seems also very short indeed when run up inside a three-storey office building, owing to the amount absorbed going round corners without kinking.

An Instructive Fire Drill

An interesting and instructive drill is provided by shutting off the water supply previous to a wet drill, and seeing what the fire chief will do in an emergency. This is a condition that has to be worked out and provided for, as same might occur. All firemen must be familiar with the locations of fire alarm boxes, in order that no time may be lost on an alarm code sounding. A badge should be worn by all firemen as a distinctive mark; same also carries a feeling of responsibility, and allows a man to do a deal of good.

The automatic sprinkler to-day needs very little introduction, although its use is still far from being as universal as it should be. A sprinkler installation is in practically every instance a highly remunerative investment; but although having a distinct bearing on the case, the financial aspect is not the view to take to-day. There are more than individual or company profits and dividends at stake. A fire may wipe out a plant making badly needed supplies, and thus destroy a part of the empires' property.

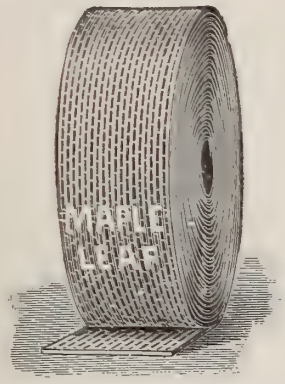
It is not suggested that every building or process needs to be protected by sprinklers. There are, however, cases where work of vital importance to the empire is being carried on, with machinery installed that is so hard to obtain to-day, and this in highly combustible buildings with the fire protection apparatus a pitiful mockery.

Sprinkler Installations

It is claimed that all industrial works that are carrying on work of national importance, and likely to continue so doing should be "inspected" with regard to their fire protection apparatus. The degree of hazard introduced by the occupancy, or process should be ascertained, and the relative protection afforded by the buildings determined, as regards exposures, or the possibilities of isolating and limiting a fire at any rate to a particular building or area. Any case brought to light under this system should be immediately dealt with, and suitable protective measures taken. In situations where financial burdens would be caused, state assistance should be forthcoming.

We will now deal with some of the reasons, or justifications for sprinkler installation. It has been said that the

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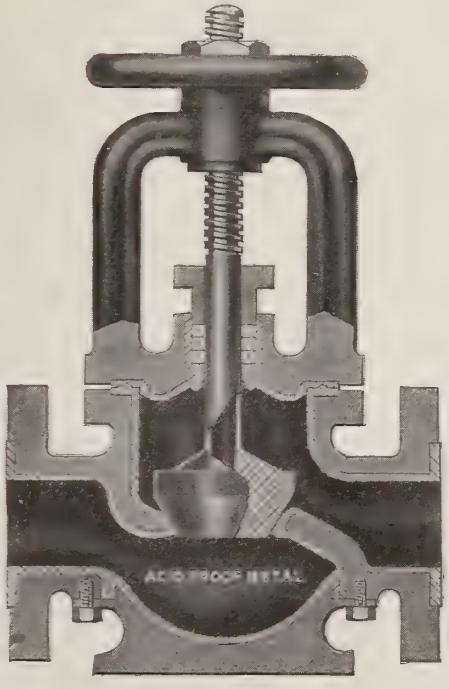
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whole theory of the system or idea is to place a sprinkler head wherever it is possible for a fire to break out; this head fuses and the water extinguishes the fire in its incipiency, before it gets out of control. This procedure is exactly what is done; the head is always located within range of a possible fire.

The first consideration is the class of construction, and then the occupancy. From the above an effective range, or spacing of the heads is decided upon.

Effect of Heating

Consideration has also to be given as to whether the building can always be heated, or if in case of cessation of work, a building might be left unheated. This latter statement is important now when fuel is scarce. In case of it being decided that the building may at times not be heated the sprinklers are then installed on what is known as the "Dry System."

The dry system is more costly to install, but ultimate saving in fuel will soon pay off the extra initial expense, and the additional maintenance. The system, briefly, consists of: On the supply pipe from the water main, is located a special valve known as a "Dry Pipe Valve" housed in a frost-proof box. This valve allows of the exposed sprinkler piping being charged with air at about 25 pounds pressure, which pressure automatically balances that in the water main. The operation depends on the release of the air pressure by one or more sprinkler heads fusing and dropping the air pressure to a point say about 10 pounds, when the water pressure overcomes the air, rushes in, fills the system and sprays the area where the sprinkler head has fused or melted, due to the high temperature caused by the fire.

A wet system is similar, but the water is always maintained in same, and the building must be properly heated at all times. The dry pipe system is not so quick to operate as a wet, owing to the air having to get out of the piping before the water can get in, the lost time varying with the cubic contents of the pipe system.

A sprinkler installation, however, no matter whether wet or dry, is always on the job, and the moment the temperature of the air surrounding the sprinkler head reaches a predetermined point (according to the occupancy) the releasing gear melts and the head commences to discharge water.

In most installations the operation of a sprinkler head causes an electric or water motor gong to sound and give the alarm. Sometimes both electric and mechanical gongs are fitted. There are old plants, however, where no alarm apparatus is installed on the wet systems.

The provision of alarms is most important, as apart from giving a fire warning, there is also possible danger of water damage. In the case of dry systems, operating in cold weather, these require to be drained as quickly as possible; otherwise there will be a freeze up, and loss of protection should the valve trip at any time.

Justifying the Installation

Reverting back, one of the prominent reasons justifying sprinkler installation is the application of water exactly where needed, the assumption being that the system is properly laid out and installed. It is obvious, therefore, that the minimum quantity of water will be required to effect the desired result, and that even if the public water supply is off your gravity tank secondary supply ensures that your protection is not entirely removed.

Again it is rarely possible to apply water by means of a hose stream as efficiently as will a sprinkler head, especially where the fire is located well inside a building and creating

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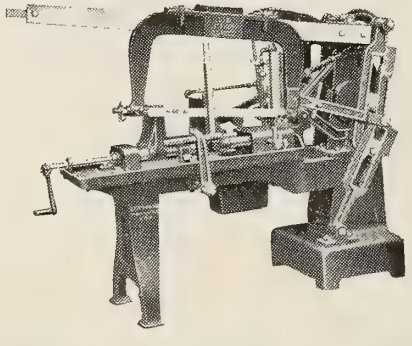
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a heavy smoke. Then there is the delay that must always take place before a fire brigade can get to work; for example at night in a plant on day work only.

Sufficient has now been said for the sprinkler, except perhaps that the best booster is probably the difference in insurance rates with and without sprinkler protection. In general an approximate figure of from 50 per cent. to 90 per cent. may be taken as the average reduction in the insurance rate after the installation of automatic sprinklers.

The details of sprinkler installations are outside the scope of this paper, and are fully dealt with in the National Board of Fire Underwriters' pamphlets on the subject.

Certain features and defects that have been brought to light by inspection may be of interest.

"Change of grade of sprinkler piping." It is essential that sprinkler systems grade properly on account of drainage, and is most particularly important on dry systems. One case in mind is that of old frame buildings with poor foundations. Each winter the frost heaves and distorts these buildings and the grading of the piping has to be regularly checked and corrected in order to ensure drainage. The above features of heaving, and also settlement of foundations have to be constantly watched for.

A fairly certain indication that the system needs regrading is shown when draining the dry systems. The water after running out on a well graded system stops, except for a few drips, but if the grading is poor it takes longer to run out, continuing to dribble for some little time.

Defects Often Encountered

In old and damp buildings the pipe hangers often break away from the ceiling on account of the wood rotting and the screws pulling out, or even the ceiling boards coming away.

Painted and whitewashed sprinkler heads are often found. Painting or whitewashing should not be carried out in the neighborhood of sprinklers unless they are properly protected by paper bags or the like. There are, however, cases where sprinkler heads are deliberately painted, and made pretty through ignorance. The effect of paint and whitewash on sprinkler heads is to insulate the fusible link, and also to generally cause same to stick, the combined effect being to cause the heads to operate slower and at a higher temperature.

We have made numerous tests on painted heads, as compared with clean heads of the same degree. The average result was: that the effect of paint on ordinary heads caused them to fuse at a temperature of 125 degrees Fah. higher than that at which clean sprinkler heads of same age, and from the same system operated at. The age of the paint would probably affect the result. New paint might have no effect.

Corrosion is also met with, same being found principally around lacquer rooms, over furnaces using soft coal of certain grades, and in the vicinity of any acid or corrosive fumes. The effect is similar to that from painted heads and may be much more pronounced right up to the point of definite final failure to operate. In situations where corrosion is to be expected the sprinkler heads are coated with a special wax, and known as "Corro-proofed." Or heads are fitted covered with a glass dome.

Sprinklered risk fire records are interesting, in providing evidence of the efficiency of this class of protection. The writer has just examined a report covering records of 100 fires in every class of occupancy and building. In 49 per cent. of same not more than two sprinkler heads operated in order to extinguish the fires.

It is very doubtful whether the hazard arising from spontaneous combustion is given the consideration it is entitled

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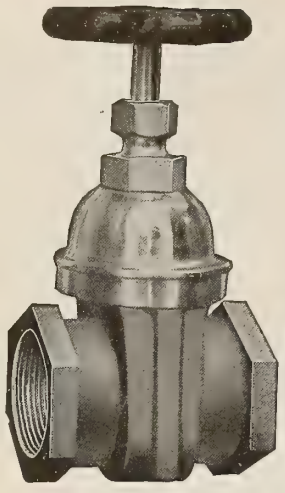


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to receive. Briefly, spontaneous combustion consists of rapid decomposition or oxidization, this evolving sufficient heat to raise the temperature to the ignition point of the substance, or surrounding medium. The list of substances liable to give trouble under this heading is large, and only a few of the more prominent ones will be taken, as follows:

Linseed oil, either by itself or in a mixture when spread on a surface such as waste, polishing cloths, painters' overalls, floor mops, etc., is liable to spontaneous combustion.

All vegetable oils.

Oily hand waste, although as a rule saturated with a mineral oil, is treated as a distinct hazard on account of the possibility of presence of vegetable oil.

Waste (damp).

Bituminous coal.

Lime.

Charcoal when fresh from kiln.

Old bags piled in warm damp heaps.

Garbage or trash can contents in paint shops.

Hay (damp).

We have clear records of several cases of spontaneous combustion, one case occurring in a bin of average cotton waste, possibly not of the highest quality. The waste was stored in a wooden bin approximately 3 ft. by 6 ft. by 4 ft. high. After the fire had been drowned out, the waste was carefully removed and it was found that the fire had originated in the centre of the bin about six inches up from the bottom and then burned a passage diagonally toward the back and burned a charred track in the wood about six inches wide up to the top of the waste, when, on reaching the atmosphere, the entire surface had ignited and charred the exposed upper parts of the bin.

When Waste Ignited

The interesting feature was that a month or two previous, whilst on an inspection trip the waste in this bin had been found to be heating, and a special metal-lined bin was ordered, with lid controlled by a fusible link, details of which are mentioned in an early part of this paper. This case of spontaneous combustion has taken place since the earlier paragraph mentioned was written. Possibly nature knew examples were needed. Anyway we have a photograph to show interested parties.

Following on our established system a circular letter detailing this occurrence in full was immediately sent to all our works together with blueprint showing a suitable metal-lined bin to be used for waste storage.

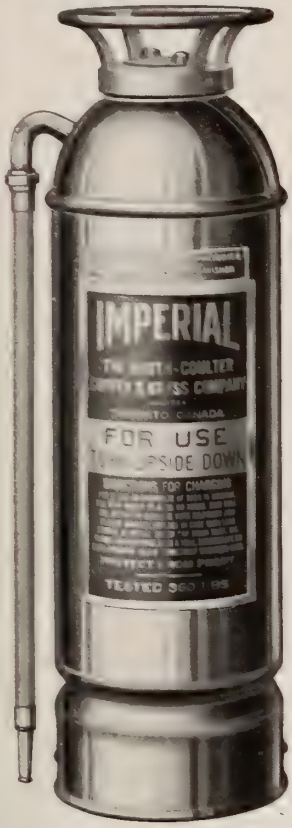
Another case of spontaneous ignition occurred in some rags that had been used by a man whilst oiling a hardwood office floor. This occurred at night and was discovered by the night watchman after the rags had been hung up, and is a good example of what may be expected from similar procedure with the common household mop for floor oiling.

Two definite cases where householders have had floor mops ignite spontaneously are known, but I have unfortunately not been able to see same to get particulars for this paper.

We have had two cases where painters' overalls have been found on fire by night watchmen, but have no details. However, I feel justified in assuming that both were cases of spontaneous combustion.

It is suggested here that many of the fires reported as "Cause unknown" have originated in this manner, especially in buildings where the occupancy is such as to allow of the conditions arising. It is only by rigid inspection and education that the conditions for the unintentional setting of this class of fire can be removed.

Building construction particularly, as regards additions and extensions, is most important. In making extensions to really first-class buildings, often no thought is given to the



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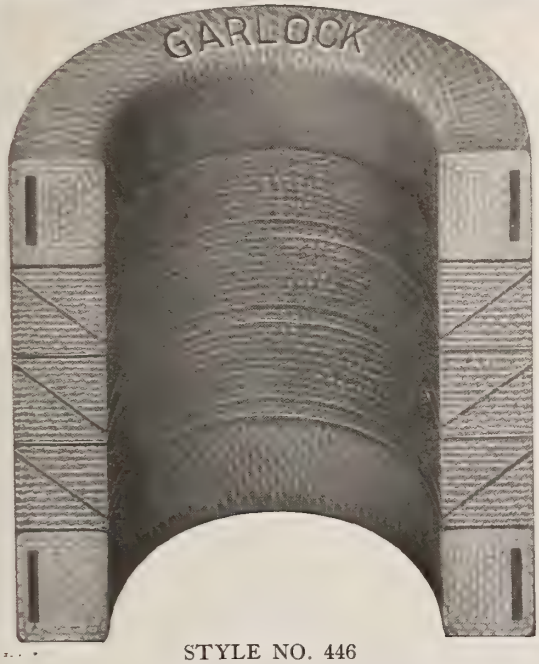
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class of construction, and the effect on the rating classification of the main building, etc., the result being that you have a main building of practically fire resistive material and a series of extensions around it of frame construction. This class of work immediately has the effect of reducing the rating classification of the main building and increasing the premium.

In most cases under this heading the saving in insurance premiums would have very quickly paid for the extra cost of the extension being built in material of equal class with the main building.

Roof Should Be Divided

Buildings of large size should have the roof divided up between the sprinkler sections by means of corrugated galvanized iron curtains, extending downwards as low as possible from the roof. Often these curtains can be secured to the roof trusses. The effect of these curtains is to act as fire stops, also to bank the heat on the sprinkler heads, making them operate far quicker, and also ensuring that the minimum number of heads operate.

Curtain boards are also very effective in preventing the rapid spread of fire along the roof in unsprinklered buildings, and their use must receive more attention than it does for such cases.

In general the policy to be followed should be to provide as many definite fire stops as possible by means of standard fire walls.

In cases where frame buildings or buildings in which hazardous work is carried on adjoin or are close to main buildings, consideration should be given to bricking up the windows of the main building, or at least providing steel sashes and wired glass windows.

A bad feature met with is that of building small foremen's offices inside main buildings and making them of frame or wood construction. These offices allow of accumulations of rubbish, invite smoking, etc., and generally block up the shops.

If in a clean shop, consideration should be given to the use of expanded steel offices. If the location is dirty, or protection possibly needed from draughts, build the offices of metal lath and cement plaster on steel frame or asbestos building lumber.

These offices on sprinklered plants, if to be enclosed, preferably have the walls extended to the ceiling, as otherwise additional sprinkler heads are required, and the result is the gradual increase in the number of sprinkler heads on a given riser, over and above the number allowed. The above remarks, of course, refer to large lockers, cupboards, dressing rooms, or any type of enclosure, the object being to eliminate these places where possible, and if not, to make them of fire resistive construction.

Defects that may be Found

The inspection of any comparatively old work will probably reveal many structural defects, that are particularly objectionable from a fire prevention point of view. In frame buildings boards are often missing on the inside sheathing, allowing fire to pass up the walls unseen, and to spread rapidly, due to the chimney effect. There is also sometimes communication from a basement or lower floor between the floor joists leading up to the space between the side walls. In general, concealed spaces must be boxed off tight, as one only has to experience the difficulty of extinguishing even a very small fire when it has got inside sheathing to realize the importance of keeping such places protected.

In two-storey buildings with inside stairs advantage should be taken as much as possible of providing means of isolating floors, even when of light construction. In several cases of

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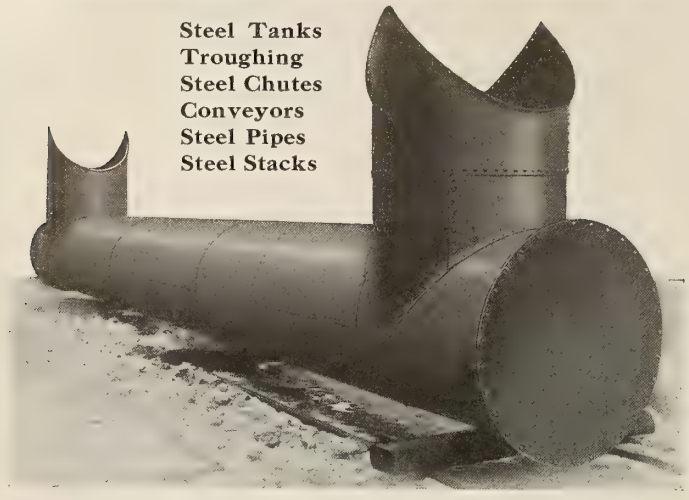
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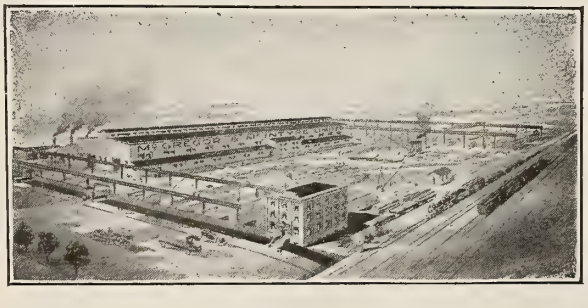
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ours trap doors have been made of three-ply construction, sheathed with tin, and held open by means of fusible links, one on the floor above and one arranged below. The preferable method is to enclose the stairway.

All openings in floors should be protected, whether for stairs, elevators or light. One of the simplest means of giving moderate protection is to build curtains around these openings on the ceiling, projecting downward about two feet. It is not uncommon to find disused elevator shafts, complete, with openings in the various floors. In a large three-storey building that had a central elevator, fitted with well-arranged trapdoors, it was found that these were all carefully nailed back, for the foreman to see what was happening down below.

Frame buildings frequently have a very light form of skylight with ordinary glass, but where there are groups of buildings of similar construction, these skylights should be protected with galvanized wire screens of sparrow mesh size. This will assist to reduce the flying brand hazard. Some of the older types of building often have a large overhanging wooden cornice. These cornices can be removed with a little trouble; the walls extended up about three feet and inside drains and down pipes fitted.

Household and dwelling hazards have been omitted entirely, as these would warrant a special paper. At the same time it must not be forgotten that in a great many cases an important factory is badly exposed by dwelling houses of frame construction, and they do not need to be particularly close to be dangerous.

It is felt that if a manufacturer is prepared to give himself a little time to investigate conditions in his works, such as housekeeping, his various industrial processes, etc., and finally what means he has of dealing with an emergency, that in many cases it will be found that conditions exist that are extremely grave.

We have now covered in a brief manner some of the more prominent features under the heading, and it is hoped that sufficient has been said to give a general idea of the possibilities that exist for greater perfection and attention to the means of fire prevention, and what apparatus to install in order to ensure a reasonable amount of protection.

Helping Men to Find Work

Scheme Adopted by the Rudd Paper Box Co. of Toronto to Assist Unemployed Labor

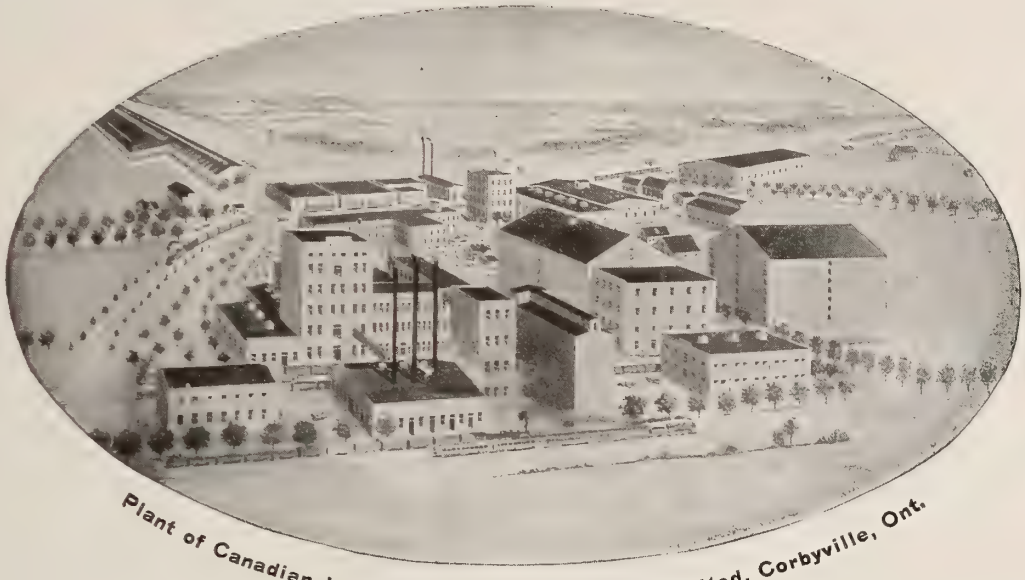
An interesting suggestion is offered by W. P. Bennett, vice-president of the Rudd Paper Box Co., Limited, Toronto.

"Occasionally," writes Mr. Bennett, "someone calls at our factory looking for employment, having had previous experience in our line. We, of course, place these people in our own factory providing we have an opening for them, but quite frequently we have not, and with a view to placing them somewhere else in the industry we have had cards printed giving the names and addresses of the other paper box manufacturers in Toronto so that they may call on the other box factories, our idea being that it would be much wiser for them to find a position in some factory where they are familiar with the work than if they go to a factory in some other line.

"Would it not be a good idea for other lines of industry to adopt the same policy? We have had a sufficient number of these cards printed so that we may distribute a liberal quantity with our compliments to the other names mentioned on the card. We are also sending a supply of these cards to the Ontario Government Employment Bureau so that they may use them for the same purpose."

This is certainly an idea worthy of the consideration of other manufacturers, since it helps to smooth the way towards the absorption of surplus labor.

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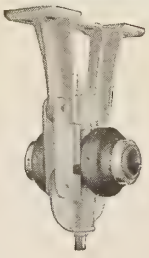
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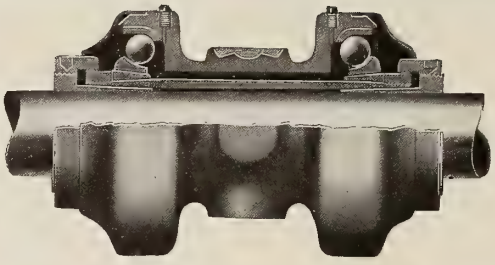
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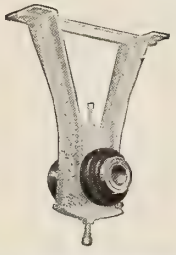
"Yes, They May Be Good, But What Do They Save Me?"

Answer:—There is no "may be" about it.

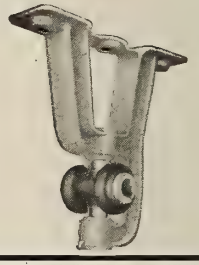
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By JUDSON GRENELL

(From the "Michigan Manufacturer")

PEOPLE in all ages have generally believed that the political, industrial and religious institutions under which they were living were in accord with God's laws, and therefore were pretty nearly perfect, as well as permanent. Being for the most part without imagination, they were unable to conceive of anything better than their political organization, their industrial life and their religious beliefs. Those who had the temerity to offer criticism or to make suggestions of improvements were considered freaks who should neither be trusted nor followed.

In this respect the common run of people of this age, without regard to classes, are no different from the people of preceding ages. Therefore even to hint that there are imperfections, some of them serious, in the present methods of industrial life, is to be denounced by the great majority. A few will concede that the machinery of production and distribution will occasionally slip a cog, but they also insist that all that is necessary to make the machinery run smoothly is a little better alignment, or possibly a new system of lubrication.

The "Capitalist Age"

In production the world has seen the slave age; the serf age; the guild age; and just now it is enjoying the capitalist age. Each of these evolved out of the economic conditions preceding it. There was resistance, and there was economic disaster. The changes were compulsory; yet had there been no resistance at all, the swing of the economic pendulum might have described arcs that would have brought cataclysmic catastrophes.

Is there anything fundamentally wrong in society's present system of production and distribution? Is the capitalist state to be wrecked as have the other industrial systems that preceded it? Are there no earmarks whereby the students of to-day can shrewdly prophesy as to the future?

Just a word as to what is meant by the term, "capitalist state." The three factors in production are land, labor and capital. The first one is passive, the other two are active. A capitalistic state is one in which the people are politically free, but who are divided into owners and non-owners of the means of production—of the land and capital needed in order that labor may produce wealth—the number of those owning being markedly less than the majority.

Why is the present industrial regime unstable? It is useless to deny this instability. Here is a society in which the ownership of the fundamental means of production is confined to a comparatively few. Talk around it as you please, there is no getting away from the fact that where there is such an economic condition, free bargaining between the owners of the means of production and those needing the use of what the few possess is impossible.

I do not want to be understood as holding that the owner of capital is a more important figure in production than the owner of land. The reverse is true. But to follow this up would take the discussion far afield, and for present purposes it is sufficient to show that the capitalist state of to-day consists in a combination of these factors in production

This capitalist regime is being subject to two strains: There is the moral strain, in that it enables those who own the means of production either to be overpaid for their services or to live without work; and there is the economic strain, in that there is a condition of insecurity as to both work and wages, and to which the great mass is condemned. In a word, while there is political freedom, the ownership of the means of production in the hands of the few does not allow of industrial freedom.

Because of this combination, there is seen a competitive market between non-owners for employment, modified to some extent by combinations of workers; but the result is that those who work must be content with at least as much less as will satisfy the demands of those who do not work, but who can give or withhold employment.

Naturally the owners of the means of production must leave to those who work sufficient to enable them to live in the manner common in their station, and to reproduce and support a sufficient number of the human family to keep up the supply of labor.

Not All Employers Capitalists

Another digression is needed lest I be misunderstood. Not all employers are capitalists—that is, their connection with the activity they are following may be very small as a capitalist, and very large as a manager. In many a large concern the employer owns only a fraction of the capital used. He is a wealthy producer in a very much larger sense than most of those he employs, and he is entitled to commensurate compensation. Still, his dual character as employer-capitalist makes him the natural and legitimate champion of the capitalist state. By the capitalist state he must stand, and if it falls, he also falls.

Nations and systems have disappeared because of even less social and economic maladjustments than the capitalist state is to-day exhibiting.

Victor Hugo, in "Les Miserables," remarked that in production, society was a marvel of efficiency, while in distribution it lamentably failed. If society's system of production was a marvel of efficiency in the middle of the last century, what would be Hugo's opinion of the productive capacity of society to-day? And does not the failure mentioned by Hugo still persist? Hilaire Belloc, in "The Servile State," argues that the capitalist state has reached its present status of

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instability because denying to the workers "sufficiency and security"; and he says that to make the capitalist state tolerable, for these defects there must be found a remedy.

"Something Must Be Done"

Even those who swear by the capitalist state as in complete harmony with God's laws will occasionally admit that common opinion has accumulated criticisms against the workings of the capitalist state; and they will also admit that "something must be done" to meet these criticisms, in the endeavor to satisfy society—public opinion—that nothing better in the way of production and distribution can be devised.

Some insist, however, that the demands of the Socialists, the I.W.W., the Bolsheviki, etc., are beyond reason and therefore the strong arm of the law should be invoked to suppress the agitation. This is folly—as great folly as anything ever proposed by the Bolsheviki. For when has force ever permanently settled anything? In fact are not the advocates of suppression more to be feared by the defenders of the capitalist state than those radicals who indeed often know neither what is wrong nor how to right it.

The wise employer will admit that there are to-day economic maladjustments requiring to be remedied. These are not the fault of the employing class as a class; nor of the wage receiving class. Rather they are incident to the present machinery of production and distribution as it has developed from the former industrial state.

I am not to be understood as saying that the capitalist state can be indefinitely perpetuated. This would be denying all the lessons history teaches as to the permanency of any industrial system thus far evolved. Neither am I to be taken as insisting that the capitalist state has seen its best day, and that now nothing remains to be done but to scrap it. There are signs that the capitalist state is still sound at the core; that its vitality, by and large, is sufficient to give it still greater growth; and that if there is proper pruning, and the elimination of its more obvious excrescences, it will serve its purpose for several more generations.

But eventually out of the capitalist state will emerge—what? The distributive state? The servile state? That is a matter for future consideration.

How Improve the System?

At this moment my interest lies in discussing the steps necessary to take in order to improve the capitalist state and make it bearable to wage earners. This accomplished, the exit of the capitalist state from the stage of human activities will be a problem in which neither this nor immediately succeeding generations will have anything but an academic interest.

There are many things in our industrial system—the capitalist state—of mutual concern to employers as a class and to employees as a class.

It is useless to try to camouflage the public into thinking that in America there are no "classes." The capitalist state demands autocracy in production. The few control; the many submit. The employing class cannot conceive of production without autocracy in the shop. Nor, as a matter of fact, can the wage-receiving class. When they gain any temporary ascendancy, is not autocracy the first thing attempted?

The world has played at democracy for a very short time. When a serious situation arises, or a situation that seems serious, all classes cry aloud for "the strong man," much as a child runs to its mother in order to escape harm. America is timidly following the forms of democracy, and is in a measure relying on its efficacy to solve world problems; but as yet there is no spontaneous acceptance of democracy as

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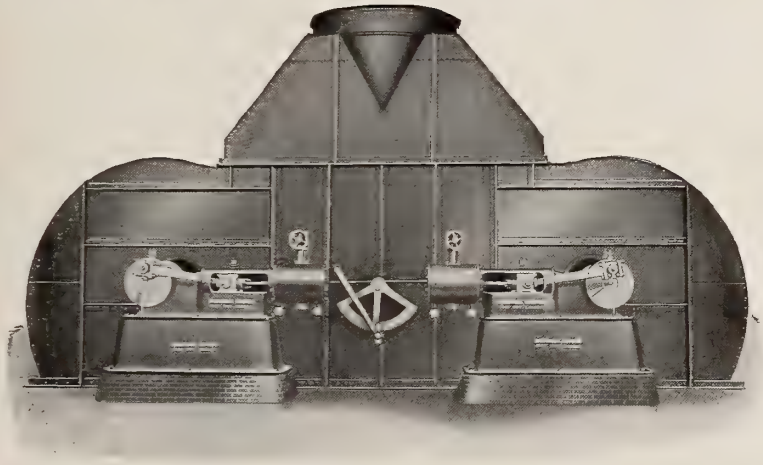
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capable of enthroning justice, either in the political or the industrial world. Autocracy has been in the saddle for tens of thousands of years; democracy is a child of to-day.

So the public, and even the majority of that part of the public known as the wage-receiving class, believe that the employer is entitled to exercise autocratic authority. He assumes certain responsibilities, and he can only do his best as an autocrat; that is the general belief. That is to say, society in the mass does not yet desire to be "the only employer"; does not as yet demand an equal voice in conducting business, albeit it does demand some voice; does not insist upon an equality of compensation for each unit in factory, or plant, or establishment, or office.

Sober Thinkers Outnumber Radicals

That there are members of the sometimes-styled "proletariat class" who are mouthing such demands is not to be denied. That these things appeal to a class within the "proletariat class," there is evidence. Yet the "sober minded" the conservatively thinking wage-workers outnumber the radical element twenty to one, and these hold the key to the situation. In a word, the Socialist state, in America, is the vague longing of only a comparatively small class who are not united on what they desire, and still more disunited on how to obtain what they want. However, it is well to realize that under the stress of unemployment extending over any considerable length of time, the number of labor radicals and the intensity of their desires are likely to be very much augmented.

One of the things of mutual interest to employers and employed is shop conditions. An old story? There are plenty of establishments in Michigan where improved shop conditions is an unknown story. And not a few employers have very good excuses for doing nothing in this direction. I have talked with employers who bitterly resent the indifference many of their employees have exhibited toward extensive and expensive shop improvements. Often the employees have to be watched, lest they destroy the very things introduced in order to add to their comfort. In fact there are employees who take delight in obstructing anything that will tend to make employees more contented. People who build so-called model tenement houses remark the same thing. Cleanliness may be next to godliness, yet, there are mothers in Detroit who sew clothes on their children when cold weather comes, and use the bathtubs for potato or coal bins.

Wise Employer Supplies Conveniences

Yet in spite of all this, the employer is wise who is lavish in supplying conveniences. Make the shop less like a house of detention and there will be fewer talking of being "wage slaves." Allow space for wash and rest rooms, for baths, for lunching conveniences, and for everything that will add to "the joy of living," and it will gradually "sink in." At least there will be less of that unnecessary shifting from shop to shop that is now a heavy burden on production and profits.

It is true that these improvements in shop conditions are not fundamental to production. The business can be carried on without the employer caring a whiff of the smoke that curls so gracefully from his cigar whether his employees are treated as human beings or as "wops." Under the competitive system among wage-workers that at times drives them into his shop begging for a job, the employer feels sure that the labor market will keep him supplied with brains and sinews and blood; yet if the insecurity of the capitalist state is not to go from bad to worse, this fact of agreeable or dis-

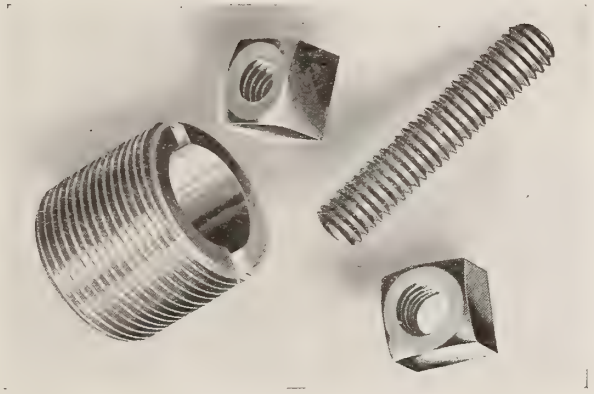


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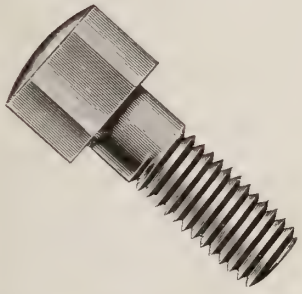


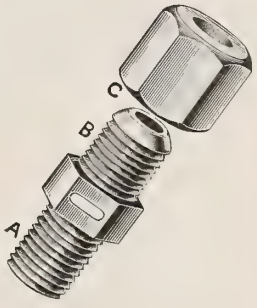




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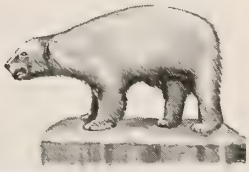
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agreeable factory environments becomes a matter to which it is well to give some thought.

Then there is collective bargaining. It necessitates shop committees. Horrors! Still isn't the insecurity of the capitalist state a still worse horror?

How many manufacturing plants in Michigan have collective bargaining? Rockefeller, Jr., recommends it to the sober judgment of his fellow employers; so do others high up in the world of industry who are farsighted; yet what steps are being taken in this commonwealth to bring this about? To be sure, some labor organizations have forced it upon some employers; yet the number of organized wage-workers is so small compared to the number of wage-workers who belong to no labor unions, and the open shops are so numerous compared to the number of closed ones, that will not employers show wisdom in inaugurating on a large scale this very much-needed reform before they are forced to it?

Collective Bargaining

An era of collective bargaining will do much to strengthen the props sustaining the capitalist state. Arm in arm and shoulder to shoulder reactionary employers and Bolsheviki orators fight against it. The employer demands complete autocracy; he is not willing to give an inch in order to save an ell. The radical sees that a contented wage receiving class will never augment his army of discontented workmen.

Collective bargaining will standardize wages to the benefit of all classes. And some "say" by those who do the work, as to what shall be considered a fair day's pay, will bring peace where there is now war. Collective bargaining is necessary to the security of the capitalist state.

In my opinion the time has come when autocracy in broadcloth must make an even still greater concession to democracy in overalls; when salaried men must yield something to wage-workers. In a word, the "wops" must have representation on boards of directors.

"What do these fellows know about markets, and the selling end of the business?" asks the employer. "How long will it be before everything is balled up? Besides, isn't this 'my' business? Don't I pay them good wages—more than some of them earn? Why don't they go somewhere else—to Russia—if they don't like my way of doing business? Give my 'hands' something to say about my own business? Nothing doing."

Who has not heard an employer thus express himself? It is human nature.

Yet the capitalist state has made "my" business an impossibility. The demand cannot be safely dismissed with a laugh, or a sneer, or a threat. Shop representation is becoming essential to the security of the capitalist state.

Radicals Misinformed

Misinformation among radical labor leaders and their followers is the basis of much of the agitation against the employing class They see around them men superior to themselves in everything that makes life worth while. They are superior in education, in environment in manner of living, in the number and variety of their recreations and amusements—in everything that makes for comfort and satisfaction.

"Who are the rich and the prosperous?" vociferates the soap-box orator. And the answer comes:

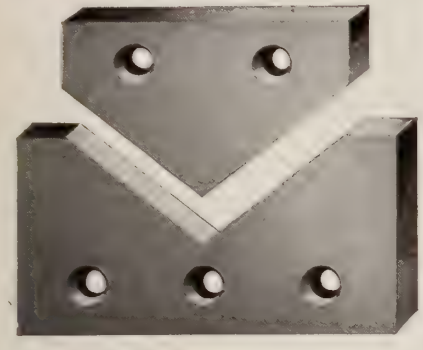
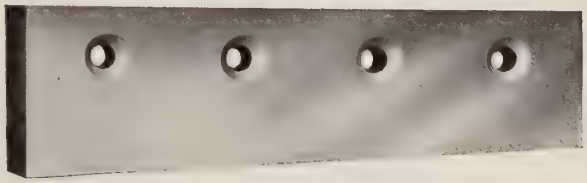
"Employers."

There are others, but in the eyes and mind of the wage-worker employers loom up large, because they are near, and so blot out the others.

"Why are employers rich?"

The soap-box orator answers:

"Because they own 'the means of production.' Their wealth is the result of 'exploiting' their 'wage-slaves.' Work-



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ingmen, who produce all the wealth of the world, are being 'robbed.'"

Such frames of mind would be very much less numerous were the facts regarding production and so-called 'profits' really known. But they will never be known until the employed class has its representatives on directors' boards.

In no instance is there more misinformation than in the item of "profits." Overhead charges of all kinds, insurance, selling expenses, bookkeeping, etc., are dumped into the hopper of "profits" and the employer is pictured as walking off with the swag.

Adequate and impartial representation in business management is about the only way left in order that this radical stronghold of misinformation may be captured.

Will the autocratic employer submit to any such innovation? He will, unless he is content to hasten the end of the capitalist state.

State Insurance

The whole system of state insurance (often ably advocated outside of Socialist mass meetings, by the way), must be grafted on to society in order to buttress the capitalist state. This includes more than securing compensation for accidents; it means out-of-work benefits, care for the health of the family, old age pensions, and even something in the way of death benefits and funeral expenses. To obstruct, as a class, the enactment of these ameliorative measures, is short-sighted, unless one thinks it is better to employ discontented and worried workers than contented and free-minded ones.

Of course this sort of paternalism must stop somewhere. In endeavoring to get rid of a little devil it will not pay to make places for two or three big ones. Yet society has advanced such a distance along this pathway that it is not sensible to balk on something so essential to human contentment as insurance. After all, the bulk of the opposition comes from privately-owned insurance companies who do not wish to see the business they have so laboriously built up swept into the maw of the state. For this they are not to be blamed. Well, neither did the stage coach like to be pushed out of existence by the competition of the steam railroad.

The employer, as an employer, is acquiescing in governmental activities much more drastic than state insurance will ever become. And in some directions he is begging for more. Herbert Spencer wrote of such state regulations as "the coming slavery." Yet, why need the employing class, as a class, offer strenuous objection? On the score of expense? Society as a whole will pay less for its insurance than it does to-day. It will not increase the number of insurance officials; it will decrease them. Many more people will be insured; and if insurance is good for the few is it not better that many carry insurance? The standardizing of insurance means economy. The state will pay part of the insurance, to be recouped by the taxation of general property; the employer will pay part, which will be shifted to production price; the wage-worker will pay part at which he will grumble at first, but will finally consider "one of the best things that ever happened." For it will minimize that fear of the future which to-day gives a sombre color to his home life.

Capitalizing Contentment

To be rid of the fear of being jobless the wage worker will give up many things—almost liberty itself. Talk to any considerable number of wage workers and ask them what they would be willing to relinquish for assurance of continuous employment, within reasonable hours and under fair conditions, for a wage that would enable them to live in the manner usual in their class, and also insure them against future misfortune. Put this proposition up to a body of average wage workers and what would they not relinquish?

There is no need to at this time carry state insurance to any such length as here suggested, but it is necessary that a good and vigorous start be made in this direction. Lloyd George has wisely made this beginning in England. Those commonwealths which first establish state insurance here are assured an industrial prosperity which will be denied states neglecting the opportunity to create a contented wage class.

With a contented wage class, where will come the material with which to create I. W. Ws., Bolsheviki, or any other disturbing industrial element in the community?

State insurance insures the capitalist state. There must be concessions, to be sure, to the spirit of democracy, but these concessions are not fatal to class domination. On the contrary, more than can be stated within the limits of a newspaper article or two, they will help to reduce to a minimum the insecurity that the capitalist state is to-day everywhere manifesting.

The discussion of major reforms, not so close to shop conditions but very much closer to the problem of securing stability to the capitalist state, is reserved for another occasion.

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By the President
British Chamber of Commerce, Paris

While the following exhortations have been penned with special regard to British trade abroad, they apply with equal force to Canada's prospective export trade, and might well be carefully noted by the Association membership.

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2. **Send your young men abroad for study and for commercial training.**
3. **Study the requirements of foreign markets and make your goods to suit them.**
4. **Employ British travellers speaking your prospective customer's language in preference to soliciting by post.**
5. **Quote your customers in the weights and measures and currency of their country.**
6. **Quote for your goods delivered at your customer's door. Shipping agents will invariably quote free delivery, duty and all charges prepaid.**
7. **Your catalogues should be printed in your customer's language.**
8. **Endeavor to meet your customer's requirements from the point of view of credit.**
9. **Correspond with your customers in their own language and not in your own.**
10. **Help to maintain the high standard of British commercial integrity.**
11. **Make use, through your travellers and by correspondence, of our Commercial Attaches and Consuls and also British Chambers of Commerce abroad, who are able to help your business in very many ways.**

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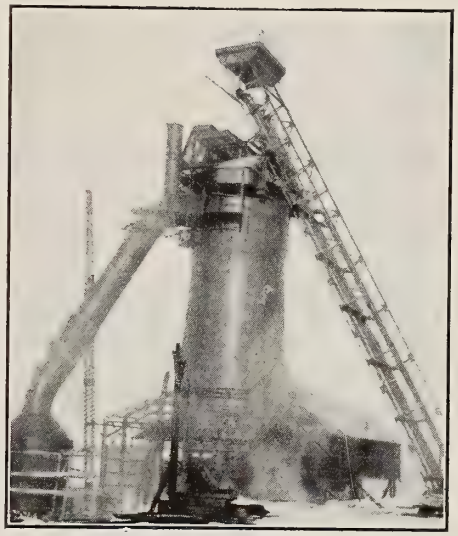
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Half a million people are employed in the factories of Canada. If there were no factories in Canada all these people and their dependants would be lost to the country. On the other hand if a "buy Canadian-made goods" movement increased purchases by 25 per cent. it would mean employment for 125,000 more men.

(From the "Toronto News.")

Giving as his conviction that one of the most important means of bringing about post-war construction would be a nation-wide movement to encourage the buying of Canadian-made goods in preference to those of foreign manufacture, Mr. J. W. Gibson, general manager of the Canada Cycle and Motor Company of Toronto, speaking at a banquet held by the London Advertising Club, stated that an increase in manufacturing in the country would do a great deal towards settling the all-important question of finding employment for returned soldiers. With a view to bringing this about, he said, the Canadian trade commissioner in London, England, was busy seeking new outlets for Canadian exports and Canadian manufacturers were also doing what they could to secure an entrance to new world markets; but more important still would be the effect of an increased demand in Canada itself for goods of Canadian manufacture.

A recent review, said Mr. Gibson, showed that leaving out of the question munitions, the average dollar's worth of Canadian goods exported contained 80 cents' worth of raw material and two cents' worth of skill and labor. In an average dollar's worth of goods manufactured in the United States and exported, on the other hand, only ten cents' worth of raw material was represented as against 90 cents' worth of skill and labor. The reason was that Canada was exporting to a very large proportion raw materials, whereas the United States was exporting manufactured goods.

Mr. Gibson said that he recently went into a store in Toronto to buy a Canadian-made hat. The clerk at first said they had no hats manufactured in this country, and tried to sell him one of British manufacture, but on being pressed found what was asked for. Mr. Gibson had a somewhat similar experience with a tailor. He wondered how many people when they went to the store to make a purchase insisted on having Canadian-made goods if the kind of goods they required, of good quality, were manufactured in this country.

As an example of the effect which increased manufacturing might be expected to have, he compared the population fluctation in a number of towns which had no industries to speak of with the figures for towns in which factories were located. Clinton, Seaforth, Mitchell, and Exeter were cited as being in the first class, and the population of each of these showed a falling off of from two hundred to three hundred in the period from 1901 to 1911. In the same period Oshawa grew from a town of 4,300 population to one of 7,400.

Half a million people were employed in factories in Canada, he said, and he pointed out that, if there were no factories in this country, all these people and their dependants, totalling at least a million and a half, would be lost to the country. On the other hand, if a "buy Canadian-made goods" movement resulted in 25 per cent. more Canadian-made goods being purchased, it would mean employment in Canada for 125,000 more men, or a large proportion of all returned soldiers.

"The greatest piece of advertising ever done for Canada," said Mr. Gibson, "was done by our soldier heroes. If we buy Canadian-made goods, we are not only helping to give employment to those men when they return, but we are helping to cash in on the advertising they did."



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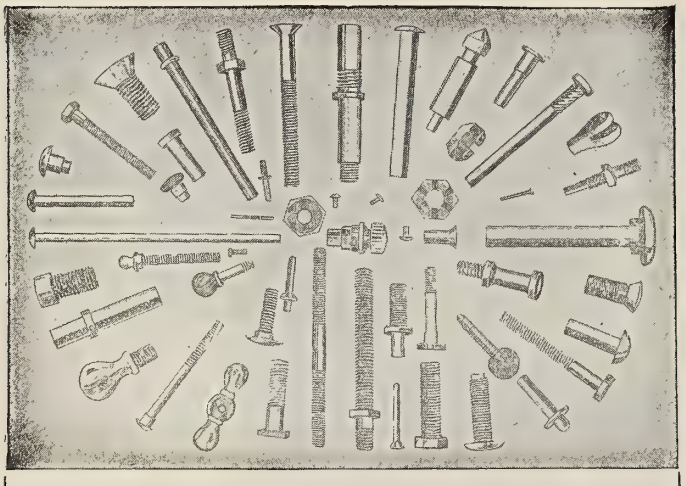
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SAVING ON THE COST OF LABOR

Labor represents from forty to ninety per cent. of the cost of everything. The manufacturer depreciates his equipment so as to replace it. He insures his property so as to protect it. He fills his store rooms with an abundance of raw materials so as to be prepared—yet for ninety per cent. of the cost of production nothing is done.

By FRANK L. GLYNN.
(From "American Industries.")

The "labor cost" of production seems to be uppermost in the minds of many manufacturers. Serious thought is also being given to it in connection with business interests of the future.

There have been many theories as to how to decrease this cost, or rather eliminate the great waste that has run wild in our American factories. We recognize the fact that the cost of "breaking in" help is from $50 to $250, depending on the nature of the work. In addition to this, then, is the lack of production due to the interference caused by introducing new help into the factory.

We simply recognize it, but do nothing.

One very valuable lesson intensified by the war is that labor is a marketable product and its cost is a very fluctuating item. It is innate in the individual, and represents from forty to ninety per cent. of the cost of everything. It enters into every product. But how do we get it? Steal, beg, borrow, *buy*—yet nothing is being done to create. The manufacturer depreciates his equipment so as to replace it. He insures his property so as to protect it. He fills his storerooms with an abundance of raw materials, so as to be prepared; yet for the ninety per cent. of the cost of production nothing is done.

Is this good business?

If you have not skilled peope, make them. But not in the usual "leave it to George" method, which often sacrifices a good man and retains a poor one, seldom gets the best either in quality and quantity that labor is able to produce if given the opportunity.

Low Average Production

Not long ago a plant was surveyed as to its production capacity, and, taking the work of the best man in each department as 100 per cent., it was found that the factory was averaging thirty-three per cent.—three hours' work for nine hours' pay. And the largest reason all through the organization was "waiting for instructions."

Not long ago I visited a plant where the general manager was desperate. "None of my help seems to know anything," he said, and that tells the story.

Stone, steel, iron or steam never did anything of themselves. It was the intelligence that brought them together that counted.

And why should this not apply to production in reducing manufacturing waste materially, besides giving the employees an opportunity to improve themselves and increase their earnings—more production, less cost, higher wages. This is the answer to all possible Bolshevism and labor unrest, but it must come through *increased intelligence.*

A great lesson was taught us by the experiment carried on by the Curtiss Aeroplane Co., of Buffalo, N.Y., as an emergency during the war.

Reducing the cost of breaking in help from forty to seventy per cent. is of material value in terms of good dollars, especiallly if one employs 10,000 people annually and the cost of breaking them in runs from $75 to $100 each.

A manufacturer recently told me that he never had stopped to consider the possibilities of such leakage before.

In a button factory it was taking eight months to break in machine operators before they were "up to production"; now it is taking eight weeks.

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An underwear factory, employing 1,000 operators, figured eight to ten weeks to break in an operator. Now it is taking one week, and has speeded up the factory.

The Eastman Kodak Co., of Rochester, N.Y., is installing this new method gradually at a saving of expense. They can't afford to not afford it.

Other concerns are developing the service and many contemplate it.

What the toolroom is to the shop, so is the training-room to the labor therein.

The Willys Overland Company, of Toledo, Ohio, has made a very definite beginning in the training of their men, and are working out a plan which will be highly significant to our national development along this line.

Its purpose is to train and test new help, upgrade old employees, adjust wage values, and conserve and adapt labor to its most valuable fitness before becoming dissatisfied or discontented.

A training department is being installed there under the direction of a specialist, that will be operated by the plant's own force at the end of three months.

Two floors of a factory building, each about 300 by 100 feet, are being devoted to this work, and will eventually serve the needs of the entire plant so far as skilled help is concerned.

Intensive instruction will be given in all lines of automobile making. Operators, machine setters, tool-makers, painters and decorators, top, trim and body makers—all will have their place, and the employees who are properly qualified will be given an opportunity to train for higher positions or improve themselves in the work in which they are engaged.

Besides the production shop there will be a tool room, to make "tool makers" as well as tools; an inspecting room, to train inspectors; a drafting room, to teach blue print reading to shop men; an assembly room, for shop talks to new people regarding factory spirit and ideals; and an auditorium, equipped with a motion picture machine for meetings of foremen—in fact, everything that will spell "production" with "facility," and assist the employees to increase their earnings in the same way.

The value of the department as seen by the management is that it reduces time and cost of breaking in new help, tests for ability in help, carries production, decreases breakage of tools and machines used in regular production, decreases spoilage of production, will raise shop standards, reduce turnover, adapts labor to better production value by fitting it properly into what it is best qualified to do, takes relays off regular production; but, *most of all*, provides the employees with an opportunity for advancement and higher earnings, instead of the "closed door," which is the usual condition found in factories since the echo of "up through the ranks" died away in the halls of the last generation.

The entire plan is interwoven with the regular factory organization, so that the initial cost of its establishment is a negligible feature. Sometimes sorrowful mistakes are made along the line of the initial endeavor, and large expenditures may be made which are seemingly justifiable but unnecessary.

The administration of the work, so far as general policies go, is under the direction of Mr. C. A. Earl, first vice-president, in charge of general management. So far as plant policy is concerned the work is directly under Mr. C. O. Miniger, vice-president, in charge of production.

Tools and equipment come under Mr. W. H. Birchall, general superintendent, while the actual operation of the work will be under the direction of Mr. C. R. Miller, who is acting as general production manager of the plant.

Mr. Miller's words are: "That if training were not good for the men and for production, he would have none of it."

Let it be clearly understood that the entire programme is one of production and productive value—not a service or welfare problem of spiritualistic value in terms of "uplift," as is sometimes thought to be the case.

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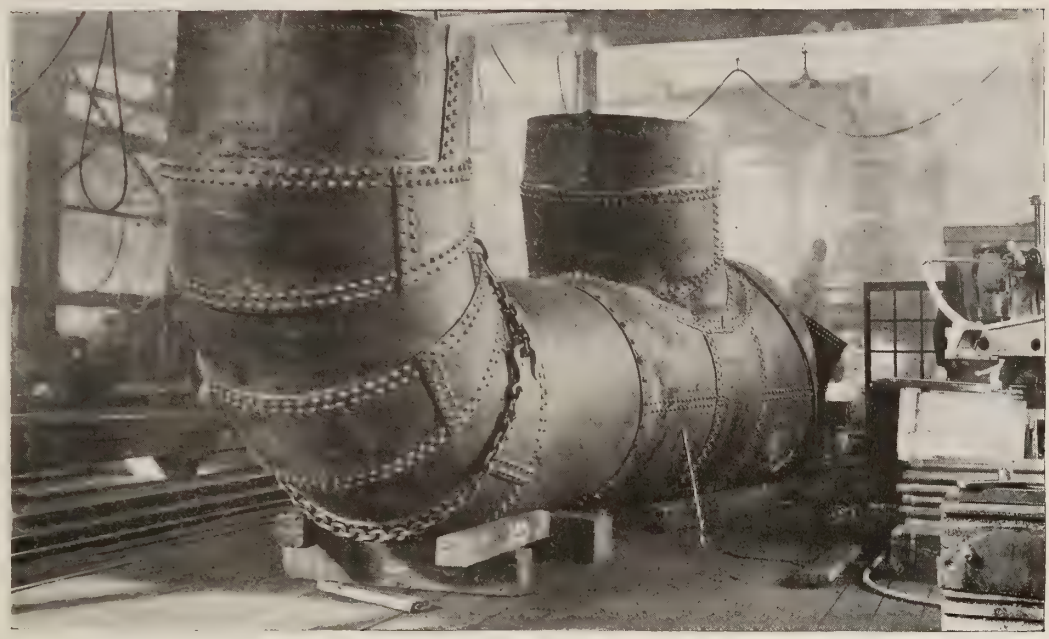
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WHAT'S WRONG WITH NOVA SCOTIA?

There is sufficient money in Nova Scotia to finance the development of the province if it could be invested. The trouble from an industrial standpoint is that the people of Halifax are not industrially inclined. They are more of a trading people. Money has been invested too much in bank stocks and too little in manufacturing industries.

By M. O. HAMMOND
(From the "Toronto Globe.")

What's wrong with Nova Scotia? The question may seem impertinent when asked by a casual visitor, and still more unjustified in view of the obvious prosperity which war has shed on the Province as a by-product. For four years the railways of Halifax have almost flattened out from the burden of traffic; its wharves have barely stood the thousands of tons of exports for European shores; its harbor has been crowded with armadas, every ship requiring supplies, from which business people derived some profit. Production has grown and the harvest has been reaped. Halifax has played no less a part in duty and sacrifice. Her sons have gone freely to war; and then, as if to impress more than ever the scourge of the world on this continent, unhappy Fate brought an explosion, which wiped out 1,700 lives and many millions of property.

Halifax, then, has done her duty in the war, and has incidentally prospered. But business men and people of vision are restive. They look to the future and expect more than past dreams unfulfilled. Here is a great ocean port, far out in the Atlantic, with much of the commerce of a great country to pass through her doors. "Nova Scotia is the Atlantic wharf of the Dominion and its eastern front door," as Mr. D. McGillivray happily phrases it. St. John may rightly dispute the title on the wharf question, but there is no doubt as to the value of the general location. Well, then, here is a Province with an ocean port on which the Dominion Government is spending $30,000,000 on terminals. The greatest ships on the Atlantic, such as the Olympic, Mauretania and Aquitania, drawing 36 feet or more of water, have called and moved easily in and out. The Canadian war effort was made an all-year-round affair before the United States entered the conflict, only because the Intercolonial ran down to the Canadian seaboard and crowded the ports with soldiers, munitions and supplies.

What of the Future?

Now that the war effort is over Nova Scotia is asking what is to be her future. She is awakening from her lethargy and her dreams. It is not enough to have published the first Canadian newspaper, opened the first Local Legislature in Canada, and the first college; nor is the beautiful legend of "Evangeline," and the poetic marshes of the Annapolis Valley sufficient for future ambitions. One hundred Nova Scotia business men sat round a table recently and tried to think it out. It has become a practical question now. The catalogue of the Province's undeveloped resources which was revealed would make Midas envious. There are 1,000 miles of sea coast, broken by 31 harbors suitable for sea-going vessels; there are annual farm products worth $45,000,000; ten billion feet of timber is still standing, a small remnant of "the forest primeval" of Evangeline's day; the fisheries are inexhaustible, for they are self-propagating, and need no attention, as farm stock do; there is an annual coal production of 6,000,000 tons, and 9,000,000,000 tons still to be mined; the steel industry has a firm footing, and must expand greatly.

These are some of the Province's assets, and business men are asking that they be developed. An outsider may be



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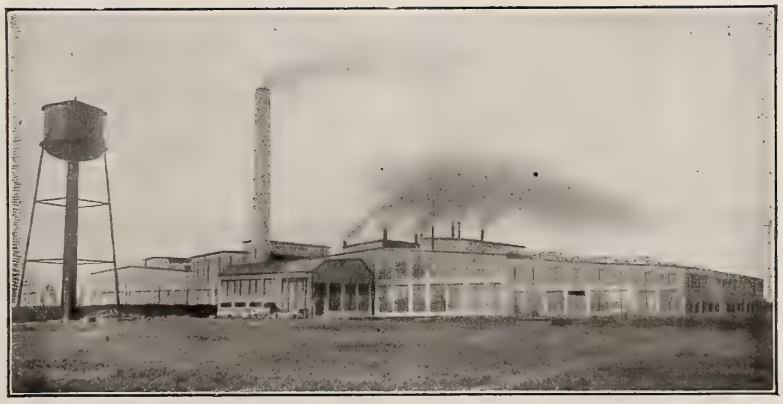
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pardoned for suggesting, "Well, then, why not develop them?" If ever there was a time to go ahead it is surely now. The natural wealth seems to be here in most liberal quantities. Further, the Province has "heaps" of money; its savings banks are bursting with deposits. Why cannot the money be applied to the resources as a match to tinder, and a blaze of prosperity result?

It looks easy, but it may not be so. I asked Mr. H. R. Silver, President of the Halifax Board of Trade and a director of the Canadian Bank of Commerce, why Nova Scotia wealth should not develop Nova Scotia resources.

"There is sufficient money in Nova Scotia to finance the development of the Province," said Mr. Silver, "if you could get it invested. The last Victory Loan proved that, and I am told the bank deposits in the Province were barely scratched by the loan subscriptions."

"How are you going to get that money invested?"

"Just inspire confidence, and that will take time. If we cannot develop local confidence fast enough we will have to get money somewhere else. The trouble in Halifax from an industrial standpoint is we are not an industrially inclined people. We are more of a trading people here. Further, for years we had too many banks here, and too many people invested in bank stocks. If that money had been invested in manufacturing industries we would have had a different class of men here to-day. I would rather see businesses established in a small way where our people could watch their capital and make the enterprise their life work, so that extraordinarily enterprises would not be necessary."

So that the matter is largely in Nova Scotia's hands, but not quite. Already outside capital has established such basic industries as oil and sugar refineries on the Dartmouth shore of the harbor. Crude oil comes in tankers from the south, sugar cane from the same direction. Fish is cured and taken to the West Indies and South America, and the ship brings back coffee, molasses and other tropical products. But a voice is heard that the railway service to the Western Provinces is inadequate. There is a call for a double-tracking of the Canadian National line from Halifax at least to Moncton, for it is said that the delays under the recent heavy traffic were on that section. Further, the idea is put forth that with better rail facilities all mails could be landed here and reach New York a day ahead of the steamer.

The Application of Welding

The amount of publicity that has been given to the fact that ships are being constructed with the various parts welded together instead of being riveted as hitherto must serve to focus the attention of engineers upon the possibilities of this method of construction. Welding has for a long time been used with considerable success for the carrying out of various repairs, for the uniting of fractured parts of castings, and even for the thickening up of wasted parts, but its extension to many processes has been slow in following the obvious success which it has long achieved in the more limited field of repair work. For the construction of light tanks where absolute water or oil tightness is desired, welding can be easily used and it is worthy of notice that the process has been utilized in this direction but mainly for the uniting of parts in awkward positions where riveting would be difficult to perform. The blow-pipe yields one of the simplest means of cutting plates known to the engineer, particularly if cutting to any desired shape is required, but it must be admitted, says *Power User*, that the more laborious methods are still used in shops which will be considered up to date. It will be apparent that the field open to the application of welding processes is far from being covered by the examples quoted above.

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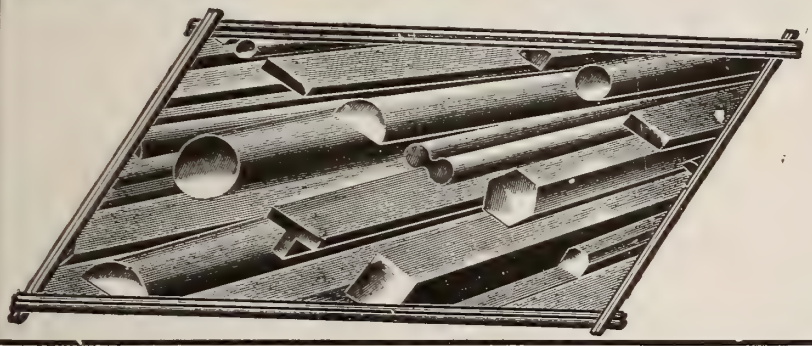
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SAFETY WORK IN THE SMALLER PLANT

To get the support of men in accident prevention work it is useless to go ahead until you have the whole-hearted support of the foreman and others in charge. Better take months to get the support of the foreman than try to carry out prevention work with his men without his support.

By WILLS MACLACHLAN.
(From the "Manufacturers' News.")

One of the difficulties of interesting the small company in accident prevention is the fact that accidents do not occur frequently in the same plant. This is quite true, but accidents or lost time per capita in the small plant is large, if not larger, than in the large plant, and the hazard is just as great. Also, in utility work, accidents are not numerous, but they are severe.

To handle successfully any work in a company it must be put in the hands of some one who is an expert in that particular line. In a large company, accident prevention is the whole duty of one man or staff of men. This is not possible in a small company, but there is nothing to prevent a number of small companies banding themselves together into an association for the purpose of accident prevention and employing some one to supervise the works.

Another plan that has worked out very successfully is to engage, on retainer, a supervisor who will give a certain portion of his time toward the work of the company. This supervisor may be one man or may be a firm or bureau.

In starting the work in a utility I would say the first thing to do is to go over the accident record for as many years as is possible and tabulate this under "Cause and Department" for accidents and lost time due to accidents, getting it on a per capita basis if possible. Next comes the physical examination of the plant. Let us assume a hydraulic development, under moderate head, with a transmission line and substations. The intake should receive our first consideration. Is the dam safe? Should it be guarded to protect employees or the public? Is the stop-log winch O. K. or should the gears be protected, and should men be warned in regard to danger from the winch handle if the chain is down during moving of winch? Then the racks need attention. A very good plan is to put a 4x6 along the edge of the platform, just over the racks. This gives the men a good foothold in icy weather. If men are working over fast-moving water, they should have life lines, and at least life buoys and pike poles should be handy.

Important Precautionary Measures

The belts driving the governors and oil pump, if any, should be guarded by a wire mesh guard, the fly balls and small gears on governors should also be guarded. Then, if the turbines are driven by crown gears, these should be enclosed. Safe access to all bearings should be assured. Guard rails should be put around the generators and many exposed leads guarded.

All belts and gears should be substantially guarded, stairway should be safe and passageways all lighted, and tools should be examined and all burred sledges, drills, etc., dressed. Rubber gloves should be examined inside and out and usually condemned—our practice is to use buckskin covers over rubber gloves. This is for mechanical protection.

In telephone arrangements in systems using high tension the operators and patrolmen must be protected. This can be very well taken care of by use of the insulated stool or cabinet, also by training operators in the correct way to use the receiver to guard against deafness from severe noise.

Is there a provision for grounding the line just outside the power house? This should either take the form of

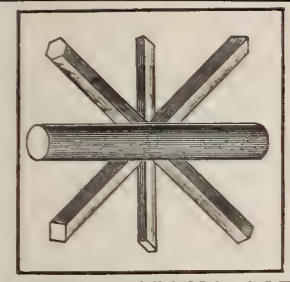


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grounding switches, grounding clamp, or a ground chain. Patrolmen should carry either two sets of grounding clamps or two ground chains, but on some systems of patrol grounding clamps are too heavy to carry. Now, let us look at the switching tower; If it is supplied with a platform, the platform should be railed and a toe-board provided. Some systems are now putting in switching towers with switches operated by a chain or rod mechanism; this should be grounded and provision made for locking in both the open and closed positions, both of which should be clearly designated, the switch, of course, having its name or number clearly shown.

One hazard in sub-stations that is often overlooked is the necessity of using a stepladder to read transformer temperatures. One way of eliminating this hazard is to make a periscope by the use of two good mirrors and a length of fibre conduit. In sub-stations having no regular attendant more care should be paid to protection of apparatus than in attended stations. This is because an unskilled person is often required to go into these stations, at intervals, to change meter paper or to do simple switching.

Every utility, no matter of what size, should be well equipped with simple first aid outfits. For the utility in a position to call a doctor within a reasonable time such first aid kit should be very simple; it might contain boracic acid tablets, ginger tablets, carron oil, aromatic spirits of ammonia, iodine (either in liquid or preferably in crystal form), castor oil for the eye, some gauze bandages, some triangular bandages, plain or boracic gauze and absorbent cotton. For cleanliness, the package should be small in size or arranged so that a small quantity can be removed without soiling the rest. This outfit should be in a compact case and should be regularly inspected. Very simple instructions as to how to use each part of the outfit should be prepared; also instructions as to how to handle a cut, bruise, hemorrhage, or the more usual injuries. This set of instructions should also contain, in a very brief way, the most important points of resuscitation.

Arrangements should be made for the regular inspection and testing of rubber gloves.

The question of inspection of and dressing of sledges, drilling bars, etc., is extremely important, as a burr from a sledge or drilling bar is very liable to cause the loss of an eye. A regular day should be appointed for going over these, too. While on this subject it is naturally suggested that the use of goggles be enforced. Their use has, on countless occasions, saved an eye, and they should be supplied and their use enforced as rigorously as possible. It is also desirable to supply goggles that will adequately protect the eyes from an electric flash.

Fire-fighting apparatus should be supplied and rigorously inspected. Fire pails should be protected from being used as spittoons. I have found a very desirable method of doing this by pasting manilla paper over the tops of the fire pails. In using the tetra-chloride fire extinguishers men should be warned against the danger of chlorine gas in confined places.

First and foremost, in any public utility, is the training of every employee in the prone-pressure method of resuscitation. This can well be carried out as follows: A few of the employees can be gotten together and with one as a patient a demonstration of the method given, explaining each point in detail. The men to whom this has been demonstrated should be then paired off and told to carry out the method of resuscitation that has been shown them. Most of them will have their hands in the wrong place and will carry out the resuscitation too quickly. They should then be required to practice resuscitation weekly for about two months and then once every two weeks as a part of their regular duties. Records of these practices, together with the names of the men, should be kept with the regular records of the company.

To get the support of men in accident prevention work, it has been my experience that it is useless to go ahead until you have the whole-hearted support of the foreman and others in charge. I would rather take months to win the support of a foreman than try to carry out accident prevention work with his men without his support. There is another type of man that should be won over, that is, the old employee who thinks that this work is a lot of bosh. In some instances I have taken almost unlimited time to try to find out what was the basis of his trouble and to correct that if possible. An ample stock of stories of accidents, with the resulting pain and suffering to the man and his family, often is very useful in winning over this type of man. These stories should be told to the man personally in a private conversation and it is just as well not to argue with him before a number of his fellow workmen.

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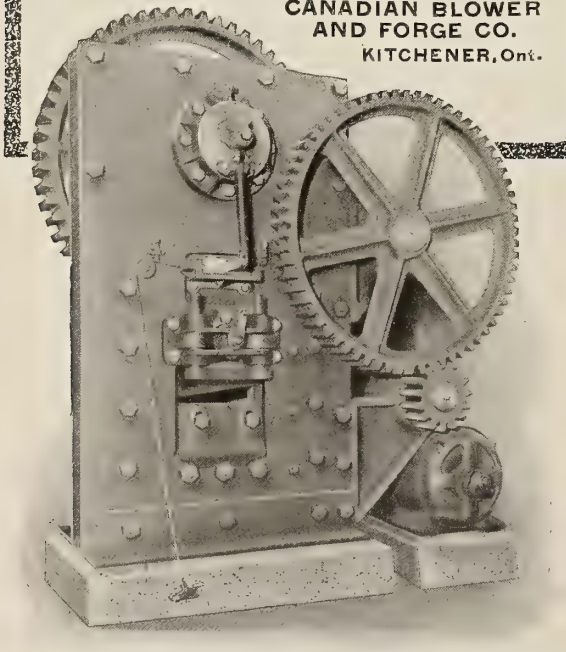
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THE GLASS INDUSTRY AND THE WAR

A long time will elapse before the output in Belgium and France is sufficient to enable these countries to export to any extent. Another factor will be the tremendous demand for glass in re-building the devastated areas of the war-stricken countries of Europe.

By J. E. HARRISON.
Canadian Manager, Pilkington Bros., Limited, Thorold.

An address before the Ontario Hardware Association.

As in the case of other commodities, it is difficult to forecast what is likely to take place with regard to supplies and prices of glass in the current year, owing to the peculiar conditions which will prevail during the period of readjustment and reconstruction. However, I propose to analyze briefly the situation according to reports emanating from different countries, confining my remarks chiefly to window glass.

Until August, 1914, Canada drew the bulk of her supplies of glass from England and Belgium, and a part of the demand was met by the output of our factory in Canada, which, by the way, commenced operations in May, 1914, but on the outbreak of war, supplies from England and Belgium were quickly cut off, and since that time the requirements of this market have been, and continue to be supplied by the many United States manufacturers and the output of our plant at Thorold, Ontario.

Doubtless the foremost question in your minds is: When will supplies from England and other European countries again be available? I have no official information on this point, but reports and despatches during the last three months appear to confirm that the equipment of practically all the coal mines in Belgium and the north of France, after being used by the enemy during the war for his own purposes, were deliberately destroyed by the German armies at the time of the final retreat, and, worst of all, the mines were also flooded. As you may know, producer gas plays a very important part in the manufacture of glass, being used in the melting of the ingredients and in the flattening and annealing process. Many of the railways and steel works in those countries were also completely destroyed by the Germans after they had taken away the metal and machinery. It is, therefore, safe to assume that it will take many months, perhaps a year or two, to get the coal mines and the other industries to which I have referred, in full operation again. In the meantime Belgium and France will have to look to other countries for coal supplies.

Effect of Labor Situation

Apart from the shortage of coal required for gas-making the labor situation will cause concern for some time to come. The manufacture of glass calls for highly skilled labor, most of the workers serving from four to seven years' apprenticeship before becoming proficient. A large number of Belgian glass-makers—and this also applies to England—have been killed or disabled in the war, and during these four years there have been no apprentices in training. It may be of interest to you to know that the firm I represent in Canada has a factory in Maubeuge, on the northern border of France, and I have news that this was used as a gun-repairing shop by the Germans, and that every piece of machinery was plundered or destroyed by the enemy. This condition will doubtless apply to many other factories which were all practically within the war zone for the entire period of hostilities. The conclusion is that a long times will elapse before the output is sufficient to enable these countries to export to any extent. Another feature deserving of note is the tremen-



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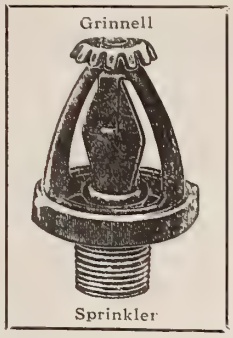
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dous demand there will be for glass in rebuilding the devastated areas of the war-stricken countries of Europe.

These appear to me to be the chief factors in considering European supplies. If my observations are correct then it would seem that Canada cannot look for large importations of glass from Europe for quite a long period, which means that it will be necessary to continue to draw your supplies from the United States and Canadian factories.

With regard to prices, I cannot do better than quote for your guidance extracts from a recent address by the sales manager of the largest producer of window glass in the United States. His statement was:

The combined window glass output of the entire industry for the year 1918 was approximately 275,000,000 sq. ft., as against a production of about twice that amount for 1917. The export demand for the various world's markets was equal to that of the year previous; it would have been much larger if shipping facilities had been more plentiful.

The year closes with virtually no stock in the possession of the manufacturer and very small stocks located in distributors' warehouses or among the large consumers.

Conditions are fundamentally sound. The world's markets are all short of stocks. Supplies have been depleted. Active business awaits the American manufacturers in the overseas markets.

Conditions throughout the home markets are equally promising. After the business interests of this country adjust themselves to a normal peace level, building operations will be resumed, including those that were under way but subsequently deferred as a war measure, as well as new buildings that are badly needed in various sections of the country.

A careful survey of the situation warrants the belief that after the dull intervening period of readjustment is safely passed, the demand for window glass for all the world's markets will be the greatest in the history of the industry.

The cost of production continues high. There is no recession in the price of labor, fuel or materials. Market prices for glass are firm and unchanged and are ruling on the same level as those existing since last August, when the last price change occurred.

This gentleman's views are also confirmed in a bulletin to the trade, issued by a large firm of glass brokers who are the distributing agents for a number of the smaller manufacturing plants in that country.

Since the statements to which I have referred were made the skilled glass workers have received a 10 per cent. increase in wages. Glass manufacturers including ourselves have contracted for supplies of materials at high prices. The United States factories will continue on the same basis of output as during 1918, that is 50 per cent. of normal. In the case of our factory in Canada a large number of skilled workers are still in the army, consequently we are operating with a proportion of less efficient men, which, of course, seriously affects our output; materials and coal are contracted for at war-time prices, and there is every sign of the present rates of wages being maintained. You will, therefore, see that glass is going to cost more to manufacture in 1919 than it did in 1918, and as buyers recognized the necessity for the high prices of last year I do not see how their expectations of lower prices this year can be justified.

In conclusion, while it may be that prices have probably now reached the peak, the deduction to be drawn from the conditions, as outlined, is that prices will be maintained at about their present level for some time to come, especially in view of the fact that the stocks in manufacturers' and jobbers' warehouses, generally speaking, are lower than ever before known.

To help you to size up the European situation I may say that it was officially announced last week that the French Government had just placed an order for 10,000,000 feet, that is 100,000 hundred feet boxes, of window glass with the United States manufacturers. From this it looks as though there was little glass making contemplated in Belgium or France in the immediate future.

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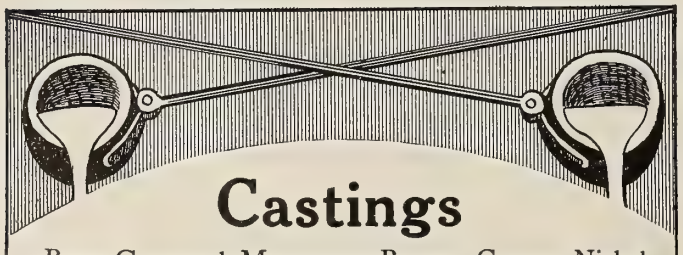


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REST PERIODS FOR BUSY WORKERS

For certain occupations a short recess in the work-spell may be desirable from the standpoint of health and may be made advantageous from the standpoint of production. In other occupations, however, the nature of the work affords such opportunities for relaxation that regular rest periods are not required.

(From "Safety Engineering.")

Experience with short rest pauses during the work-spell as a means of reducing industrial fatigue is summarized in a report by the National Industrial Conference Board, Boston, entitled "Rest Periods for Industrial Workers." That in many types of work such interruptions in the day's routine reduce fatigue and improve health was the general opinion of the employers reporting. In some cases an increase in output was noted. In other establishments, however, it was stated that the nature of the work offers so much opportunity for relaxation that regular pauses are unnecessary and undesirable. A decision whether fixed rest periods will be more beneficial than irregular pauses is best reached after a plant survey and a time study of each occupation.

Of a list of 388 employers reported to have introduced such rest pauses only 104 replied that they had adopted them, and of this number 15 later discontinued them. It is therefore evident that rest periods are the exception rather than the rule for American industrial workers.

The Question of Sex

Except in 21 instances, even in these 104 establishments, regular rest periods were allowed only to selected classes of employees, and frequently only to women. In 61 establishments reporting a total of 370,498 employees, 142,489 were allowed rest periods; of the latter number 136,531, or approximately 95 per cent., were women. Experiments of time study experts in the United States, and British experience in munition work suggest, however, that the relation between pauses and type of work is a more fundamental consideration than the sex of the worker. Rest periods may be advantageous for both men and women in some occupations, while unnecessary for both in others. The general opinion among manufacturers contributing to the investigation was that regular rest periods are advantageous chiefly for monotonous occupations or those requiring much concentration or severe physical exertion, with little opportunity for change of posture, or those in which the worker is exposed to poor ventilation. Regular rest pauses based on experimental observation have often proved extremely valuable in heavy work and in work requiring constant standing or sitting. Other advantages of regular rest periods are the elimination of time waste, by putting a stop to irregular pauses, improvement of discipline and the cultivation of regular habits among employees with respect to lunches, water drinking, and the use of toilets.

Among the most familiar examples of occupations making severe and constant demands on attention are those of telephone and telegraph operators. In the United States the leading telephone and telegraph companies have for many years allowed rest periods to their operators. Clerical workers, accountants, proofreaders and dictaphone operators are also frequently granted such pauses. Inspection in factories and work at power sewing machines are among other repetitive tasks in which advantageous results from pauses were reported.

As a rule, rest periods were from five to fifteen minutes in length, usually two in number—one in the middle of the forenoon and the other in the middle of the afternoon. In

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some operations requiring close application, however, better results were obtained by giving a rest pause of one or two minutes at very frequent intervals. These intermittent rest periods were usually used in connection with scientific management, and other factors beside the pause itself probably contributed to the results. Length and arrangement of rest periods may with advantage be adapted to occupational and individual variations.

Although absence of accurate records in many establishments precluded positive judgment, a majority of employers reported that output had not been reduced by the introduction of rest periods. Even with the aid of a staff of technical experts, one large munitions plant found that it could not appraise the benefits of two rest periods granted to 4,000 operatives, and finally it decided "on the basis of common sense" that it was self-evident that such rest periods "have beneficial results in every way." Many employers held that output had been increased.

On the interesting question of the relation of rest periods to industrial accidents unfortunately almost no evidence was secured. The general opinion of employers reporting seemed to be that there had been a decrease in the frequency of accidents, but the report states that: "Until much more is known as to the causes which control the accident curve it is futile to attempt to draw conclusions on this point."

No apparent relation between rest periods and labor turnover was indicated by the evidence.

Best results from rest periods were reported by establishments where adequately furnished rest rooms were available and where the management organized methods of filling the pauses, such as setting-up exercises, games, chorus singing, and other group activities.

Some of the Difficulties

Practical difficulties with rest pauses were encountered in some establishments. A frequent complaint was that employees showed a tendency to stop work a few minutes too early and failed to return promptly. One employer discontinued rest periods after three years' trial because he found that female employees in a great majority of cases availed themselves of the rest period and at the same time demanded intermittent relief just as often as before. Sometimes the nature of the work was such as to involve a loss of productive time greater than that taken for the rest period. Thus, in one establishment the soldering irons grew so cold during the 10-minute pause than an additional ten minutes was needed to reheat them. Rest pauses were also considered impracticable in a candy factory, because time would be lost in reheating chocolate for the dippers after such pauses.

The report points to the importance of other means than rest periods for the reduction of industrial fatigue, such as adequate lighting and ventilation, adaptation of tools and seats to the workers, increased use of labor-saving devices, elimination of noise and vibration. Alternation of tasks where workers would otherwise be obliged either to stand or to sit continuously, or a system of relief employees is frequently preferred to regular rest periods.

In conclusion, the report states: "Epitomizing the experience reviewed, it is clearly indicated that for certain occupations a short recess in the work-spell may be desirable from the standpoint of health, and that it may be made advantageous from the standpoint of production. In other occupations, however, the nature of the work affords such opportunity for relaxation that regular rest periods are not required. Their desirability and their practical utility are largely determined by the particular type of work, the composition of the work force, the length of the work-spell, and the special operating conditions in the individual establishment."

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AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.
AUTOMATIC SCREW MACHINE PRODUCTS
*United Brass & Lead, Ltd., Toronto
AUTOMOBILE ACCESSORIES
*McKinnon Industries Limited, St. Catharines, Ont.
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton, Ont.
AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
*United Brass & Lead, Ltd., Toronto
AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton
AXLES
Canada Forge Co., Ltd., Welland
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
BABBITT METAL
Alenzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BACON
E. W. Fearman Co., Ltd., Hamilton
BAGS
*Scythes & Co., Ltd., Toronto.
BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.
BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.
BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.
BAND RESAWS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.
BANK AND OFFICE RAILINGS AND CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
BARS, iron
London Rolling Mill Co., Limited, London, Ont.
BARS, steel
London Rolling Mill Co., Limited, London, Ont.
BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.
BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.
BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
BATTERIES, Flashlight
The Canadian National Carbon Co., Ltd., Toronto.
BATTERIES, Storage
The Canadian National Carbon Co., Ltd., Toronto.
BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BEARINGS, pillow block and upright
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.
BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.
BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.
BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.
BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.
BENT GOODS
The Crown Lumber Co., Woodstock, Ont.
BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.
BISCUITS
The Montreal Biscuit Co., Montreal, Que.
BLACK SHEETS
*A. C. Leslie & Co., Montreal.
BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton, Ont.
BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.
BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.
BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor,
BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited, Montreal.
BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.
BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.
BOILER PRESERVATIVES
*Beveridge Paper Co., Limited. Montreal.
BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
*Lauzon Engineering Limited, Levis, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph
*The Waterous Engine Works Co., Ltd., Brantford.
BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BOILER STANDS
Anthes Foundry Ltd., Toronto.
BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The National Acme Mfg Co., Montreal., Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.
*United Brass & Lead, Ltd., Toronto
BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto
The Mortimer Co., Ltd., Ottawa.
BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.
BOOKLETS
R. G. McLean, Toronto.
BOOKS, blank
*The Brown Bros., Ltd., Toronto.
BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.
BOTTLES, Hot Water, Brass, Nickel Plated.
*Wentworth Mfg. Co., Hamilton.
BOXES
*Crouse-Hinds Co., Ltd., Toronto.
BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.
BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.
BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.
BOXBOARDS, for making paper boxes
*Canada Boxboard Co., Limited, Montreal, Que.
BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited. Montreal.
BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRAKE SHOE BACKS
*The John Whitfield Company, Toronto, Ont.

*For Display Advertisement see Index, Page 43

BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS GOODS
*Penberthy Injector Co., Ltd., Windsor.
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead Ltd., Toronto.
*Wentworth Mfg. Co., Hamilton.
BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS RODS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRASS SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*H. Mueller Mfg. Co., Ltd., Sarnia.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*United Brass & Lead, Ltd., Toronto
BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.
The Citadel Brick & Paving Block Co., Ltd., Quebec.
BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.
The Citadel Brick & Paving Block Co., Ltd., Quebec.
BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.
BRIDGES, Railway and Highway
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Dominion Bridge Co., Montreal.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRONZE SHEETS AND PLATES.
*Dominion Copper Products Company, Limited, Montreal.
BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRONZE TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.
BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.
BUCKET TANKS
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
BUCKLES. harness and trunk
*McKinnon Industries Limited, St. Catharines, Ont.
BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St. Johns, Que.
BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Barrett Co., Ltd., Toronto and Montreal.
BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal, Que.
CABLE ACCESSORIES
*Crouse-Hinds Co., Ltd., Toronto.
CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.
CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.
CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.
CALENDARS, ADVERTISING NOVELTIES, etc.
Lawson & Jones, Limited, London.
CAMERAS
Canadian Kodak Co., Limited, Toronto.
CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.
CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.
CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.
CANVAS
*Scythes & Co., Ltd., Toronto.
CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.
CAPS FOR HUBS
*McKinnon Industries Limited, St. Catharines, Ont.
CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.
CARBONS, Electric
Canadian National Carbon Co., Ltd., Toronto.
CARBONS (headlight)
*Crouse-Hinds Co., Ltd., Toronto.
CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.
CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited,
CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.
CARRIAGE CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.
CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.
CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier
CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.
CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.
CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
CARTONS, lithographed
Harris Lithographing Company, Limited, Toronto.
CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
'Tallman Brass & Metal Co., Hamilton, Ont.
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*Lauzon Engineering Limited, Levis, Que.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
*Wentworth Mfg. Co., Hamilton.
CASTINGS, grey iron
*Canadian Rumely Co., Limited, Toronto, Ont.
*Crouse-Hinds Co., Ltd., Toronto.
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont
*Lauzon Engineering, Limited, Levis, Que.
CASTINGS, malleable iron
*Crouse-Hinds Co., Ltd., Toronto.
*Galt Malleable Iron Co., Ltd., Galt, Ont.
CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.
*Wm. Kennedy & Sons, Ltd., Owen Sound.
CATALOGUE MAKERS
Grip, Ltd., Toronto.
CATALOGUE COVERS, by new lithographing process
Harris Lithographing Company, Limited, Toronto.
CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor,
CAUSTICS
*Dominion Oil Co., Ltd., Hamilton.
CELLBOARD
Adams Cellboard Co., Toronto,
CEMENT GUNS
Steel and Radiation, Ltd., Toronto.
CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.
CENTRIFUGAL PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.
CHAINS, sling
*The John Whitfield Company, Toronto, Ont.
CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.
CHAIRS FOR AUTOMOBILES, camp, boat
*McKinnon Industries Limited, St. Catharines, Ont.
CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.
CHECKS, swing checks, etc
*Mueller Mfg. Co., Ltd., Sarnia.
CHEMICALS
*Dominion Oil Co., Ltd., Hamilton.
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.
CHEMISTS, INDUSTRIAL
*Milton Hersey Co., Montreal.
CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.
CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.
CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland.
CLOCKS, TIME
*International Business Machines, Limited, Toronto.
CLOCKS, WATCHMEN'S
*The Bennett & Wright Co., Ltd., Toronto, Ont.
CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.
CLOTHING
John W. Peck & Co., Ltd., Montreal, Que.
CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.
CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.
CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.
CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.
CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.
COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

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COBALT OXIDE
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.
COBALT METAL
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
COFFEE
S. H. Ewing & Sons, Montreal
COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited Hamilton, Ont.
COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto.
COLLAR BUTTONS
The Arlington Co. of Canada, Ltd., Toronto.
COLLARS
The Standard Shirt Co., Limited, Montreal, Que.
COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.
COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
COLORS
Brandram-Henderson, Limitees, Montreal, Que.
A. Ramsay & Son Co., Montreal
COMBS, fine dressing and nane
The Arlington Co. of Canada, Ltd., Toronto.
COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.
CONCRETE COATINGS, PAINTS, ETC.
*Beveridge Paper Co., Ltd., Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
CONDUITS FOR INTERIOR WIRING
*Condwits Company, Ltd., Toronto.
CONDULET BOX FITTINGS
*Crouse-Hinds Co., Ltd., Toronto.
CONDULETS (Marine)
*Crouse-Hinds Co., Ltd., Toronto.
CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal.
CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.
CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland.
*Canadian Allis-Chalmers, Limited, Toronto.
CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Consolidated Mining & Smelting Co. of Canada, Limited, Toronto.
COPPER, SHEETS, PLATES, BARS, RODS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER TUBING, Seamless.
*Dominion Copper Products Company, Limited, Montreal.
COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CORKS
S. H. Ewing & Sons, Montreal, Que.
CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.

CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
Corrugated Paper Box Co., Ltd., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
CORUNDUM, artificial
*Coralox, Limited, Hamilton, Ont.
CORSETS
Dominion Corset Co., Quebec, Que.
COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.
COTTONADES
Hamilton Cotton Co., Hamilton, Ont.
COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.
COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
CRANES
*Northern Crane Works, Walkerville, Ont.
*The Herbert Morris Crane and Hoist Co., Ltd., Niagara Falls.
CRANKSHAFTS
Canada Forge Co., Ltd., Welland
*The John Whitfield Company, Toronto, Ont.
CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.
CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
CREOSOTED MATERIALS
*The Barrett Co., Ltd., Toronto and Montreal.
CRUCIBLES, PLUMBAGO
Dominion Crucible Co., Limited, Montreal.
CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.
CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.
CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
CUPS, presentation
Standard Silver Co., Toronto.
CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.
CURLED HAIR
*Delany and Pettit, Ltd., Toronto.
CURTAINS, chenille
Hamilton Cotton Co., Hamilton
CUTLERY
Standard Silver Co., Toronto.
CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.
DASHES, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.
DECALCOMANIA TRANSFERS
Canada Decalcomania Co., Limited, Toronto.
DECK PLUGS (electric marine)
*Crouse-Hinds Co., Ltd., Toronto.
DENIMS
Hamilton Cotton Co., Hamilton.
DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
DESIGNERS
Ontario Engraving Co., Hamilton
DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.
DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
DESSICATED VEGETABLES
Grahams Limited, Belleville.
DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.
DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
*John Whitfield Co., Toronto.
DISINFECTING APPARATUS
Spramotor Co., London, Ont.

DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.
DOUBLETREES
*McKinnon Industries Limited, St. Catharines, Ont.
DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.
DRESSING, belt.
Sadler & Haworth, Montreal, Que.
DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.
DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILL PRESSES
*Canada Machinery Corporation, Limited, Galt, Ont.
DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.
DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.
DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.
DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
DROP HAMMERS
*Canada Machinery Corporation, Limited, Galt, Ont.
DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.
DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.
DYNAMITE
Canadian Explosives, Limited, Montreal, Que.
DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.
EIDERDOWN
Galt Knitting Co., Ltd., Galt.
ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.
ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.
ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELECTRIC LAMPS
Packard Electric Co., Ltd., Toronto.
ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.
ELECTRIC BRANDING TOOLS
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
ELECTRIC RAILWAY EQUIPMENT
*Crouse-Hinds Co., Ltd., Toronto.
ELECTRODES, Carbon
Canadian National Carbon Co., Ltd., Toronto.
ELECTROPLATING
*United Brass & Lead, Ltd., Toronto
Central Press Agency, Toronto

ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
ELECTRIC SOLDERING IRON
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.
ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.
ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
ELEVATORS
*Jenckes Machine Co., Sherbrooke.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
*The A. B. Ormsby Co., Limited, Toronto.
ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.
ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.
ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Lauzon Engineering Limited, Levis, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, gas and gasoline
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.
ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.
ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, Marine, Gasoline and Kerosine
Bruce, Stewart & Co., Ltd., Charlottetown, P.E.I.
ENGINES, oil, gasoline and kerosene
*Golson Manufacturing Co., Ltd., Guelph.
ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.

*For Display Advertisement see Index, Page 43

ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.

ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.

ENGRAVERS, PHOTO
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton.
The Mortimer Co., Ltd., Ottawa.

ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.

ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa.

ENGRAVING
*J L. Jones Engraving Company, Toronto.

ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa Limited, Ottawa, Ont.

ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.

EVAPORATED APPLES
Grahams Limited, Belleville.

ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.

EVENERS, for 2, 3, 4, 6 and 8 horses
*McKinnon Industries Limited, St. Catharines, Ont.

EXCELSIOR
*Delany & Pettit, Ltd., Toronto.

EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.

EXPLOSIVES, high
Canadian Explosives Ltd., Montreal.

FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.

FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.

FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

FASTENERS, belt
*Sadler & Haworth, Montreal, Que.

FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited, Montreal.

FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.

FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.

FENCING, wire
C. H. Johnson & Sons, Limited, Montreal, Que.

FENDERS, for buggy and carriages
*McKinnon Industries Limited, St. Catharines, Ont.

FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull, Que.

FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.

FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope.

FILING CABINETS
*Office Specialty Co., Newmarket.

FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.

FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.

FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.

FIRE BRICK
Dominion Fire Brick and Clay Products, Ltd., Moose Jaw

FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.

FIRE BRICK AND CLAY
The Dominion Fire Brick and Clay Products, Ltd., Moose Jaw, Sask.

FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.

FIRECLAY
*Jas. W. Foley & Co., St. John, N.B.

FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.

FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.

FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.

FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The Bennett & Wright Co., Ltd., Toronto, Ont.

FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited, Brantford, Ont.

FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.

FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The Bennett & Wright Co., Ltd., Toronto, Ont.

FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.

FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.

FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.

FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.

FITTINGS, steam
Warden King, Ltd., Montreal, Que.

FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.

FLAGS
*Scythes & Co., Limited, Toronto.

FLANGES, for wheels
*McKinnon Industries Limited, St. Catharines, Ont.

FLOODLIGHTS (electric)
*Crouse-Hinds Co., Ltd., Toronto.

FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.

FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited. Toronto.

FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.

FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.

FORGINGS
Canada Forge Co., Ltd., Welland.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
*The John Whitfield Company, Toronto, Ont.

FORGINGS, drop
*Canadian Billings & Spencer, Ltd., Welland, Ont.
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.

FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.

FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.

FOUNTAINS, drinking
*Mueller Mfg. Co., Ltd., Sarnia.

FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.

FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

FUEL
Standard Fuel Co., Toronto.

FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.

FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.

FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.

FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.

FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.

FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.

FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.

FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont.

FUSE BOXES
*Crouse-Hinds Co., Ltd., Toronto.

FUSE PLUGS AND FUSES, refillable
*The Clemens Electrical Corporation of Canada, Ltd., Hamilton, Ont.

FUSES
*Economy Fuse and Mfg. Co., Montreal.

GALVANIZED IRON
*A. C. Leslie & Co., Montreal.

GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
*The A. B. Ormsby Co., Limited, Toronto.

GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
*McKinnon Industries Limited, St. Catharines, Ont.

GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

GASOLINE
*The Imperial Oil Co., Limited, Toronto.

GAUGES
*Brown Engineering Corporation, Toronto.
*John Whitfield Co., Toronto.

GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
*The John Whitfield Company, Toronto, Ont.

GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.

GELATINE
Canada Gelatine Co., Ltd., Brantford.

GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.

GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.

GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.

GILDING METAL.
*Dominion Copper Products Company, Limited, Montreal.

GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.

GLASSWARE, cut
Roden Bros., Ltd., Toronto.

GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.

GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.

GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.

GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.

GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.

GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.

GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.

GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.

GREASES
*Dominion Oil Co., Ltd., Hamilton.

GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.

GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited. New Toronto.

GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.

GUARDS (Condulet)
*Crouse-Hinds Co., Ltd., Toronto.

GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited. Stratford, Ont.

GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.

GUY RODS
*Crouse-Hinds Co., Ltd., Toronto.

GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.

GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

*For Display Advertisement see Index, Page 43

HACK SAW BLADES and FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W. Fearman Co., Ltd., Hamilton, Ont.
HAMES, steel and iron
*McKinnon Industries Limited, St. Catharines, Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
*Beveridge Paper Co., Ltd., Montreal.
HARNESS
Lamontagne Ltd., Montreal, Que.
HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HARNESS HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEADLIGHT (electric)
*Crouse-Hinds Co., Ltd., Toronto.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.
HEMLOCK, union and oak sole
Breithaupt Leather Co., Ltd., Kitchener, Ont.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOOKS, for logging chains
*McKinnon Industries Limited, St. Catharines, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HUB CAPS
*McKinnon Industries Limited, St. Catharines, Ont.
HUBS, for Ford cars
*McKinnon Industries Limited, St. Catharines, Ont.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto.
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited, Toronto.
ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal, Que.
INCUBATORS & BROODERS
Lee Mfg. Co., Ltd., Pembroke, Ont.
INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont.
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited, Montreal.
INSULATORS
*Crouse-Hinds Co., Ltd., Toronto.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co., of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St Johns, Que.
IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth, N.S.
IRON AND STEEL BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.
IRON PUMPS
*Medicine Hat Pump & Brass Mfg. Co., Medicine Hat, Alta.
JACKS
*Globe Engineering Co., Limited, Hamilton, Ont.
JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.
JOINTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
*Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
*The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
*The Peter Hay Knife Co., Limited, Galt, Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Company, Limited, Toronto.
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.
LAMP GLOBES
*Crouse-Hinds Co., Ltd., Toronto.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LATHES
*Canada Machinery Corporation, Limited, Galt, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD
*Consolidated Mining & Smelting Co. of Canada, Limited, Toronto.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto
LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
*United Brass & Lead, Ltd., Toronto
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER DASHES AND FENDERS
*McKinnon Industries Limited, St. Catharines, Ont.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock, union and oak sole
The Breithaupt Leather Co., Ltd., Kitchener, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston
King Brothers Company, Limited, Whitby, Ont.
LIGHTS (marine, side and port)
*Crouse-Hinds Co., Ltd., Toronto.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Company, Limited, Toronto.
The Mortimer Co., Ltd., Ottawa.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
*United Brass & Lead, Ltd., Toronto
LOGGING CHAIN HOOKS
*McKinnon Industries Limited, St. Catharines, Ont.
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.

*For Display Advertisement see Index, Page 43

LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
Henry Disston and Sons, Toronto
MACHINE TOOLS
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special
*United Brass & Lead, Ltd., Toronto
MACHINE WORK, special and repairs
*Canadian Rumely Co., Limited, Toronto, Ont.
*The John Whitfield Company, Toronto, Ont.
MACHINERY AND UTENSILS FOR BAKERS
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR CANDY
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY AND UTENSILS FOR ICE CREAM
Fletcher Mfg. Co., Ltd., Toronto.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited, Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland.
*Northern Crane Works, Limited, Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, punching and shearing.
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd. Dundas, Ont.
MACHINERY, railroad and car-shop
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton.
*Canada Machinery Corporation Limited, Galt, Ont.
MACHINERY, special
Bawden Machine Co., Limited, Toronto.
*The John Whitfield Company, Toronto, Ont.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Canada Machinery Corporation, Limited, Galt, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WORK, special and repairs
*Canadian Rumely Co., Ltd., Toronto, Ont.
*John Whitfield Co., Toronto, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Montreal
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MALLEABLE, for carriages
*McKinnon Industries Limited, St. Catharines, Ont.
MALLEABLE IRON CASTINGS
*McKinnon Industries Limited, St. Catharines, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILINGS
*The Pedlar People Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The Pedlar People Limited, Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People, Limited, Oshawa.
*The A. B. Ormsby Co., Limited, Toronto.
METAL STAMPINGS
Canadian Cartridge Co., Ltd., Hamilton, Ont.
METERS
Canadian Cartridge Co., Ltd., Hamilton, Ont.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto.
MIXERS, chocolate, dough and paint
Fletcher Mfg. Co., Ltd., Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.
MORTISERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd. Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton, Georgetown, Ont.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
MOULDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto.
NAPHTHA
*The Imperial Oil Co., Limited, Toronto.
NECKYOKES
*McKinnon Industries Limited, St. Catharines, Ont.
NICKEL OXIDE
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
Coniagas Reduction Co., Limited, St. Catharines, Ont.
NICKEL METAL
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
NIPPLES, for radiators
*McKinnon Industries Limited, St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
OARLOCKS
*McKinnon Industries Limited, St. Catharines, Ont.
OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.
OFFICE DESKS
*Goderich Organ Co., Goderich,
OFFICE EQUIPMENT
*Office Specialty Co., Newmarket,
OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal,
Sherwin-Williams Co. of Canada, Limited. Montreal, Que.
OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.
OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.
OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton.
*Imperial Oil Co., Toronto.
OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*Dominion Oil Co., Ltd., Hamilton.
*The Imperial Oil Co., Toronto.
OILS, road
*The Barrett Co., Ltd., Toronto and Montreal.
OIL HOLE COVERS
*Canadian Winkley Co., Limited, Windsor, Ont.
OIL CUPS, both screw top and hinge lid
*Canadian Winkley Co., Limited, Windsor, Ont.
OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.
ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.
ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.
OVERALLS
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.
OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.
OVERHEAD RUNWAYS
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Richards-Wilcox Canadian Co., Limited, London, Ont.
OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.
OXYGEN
*L'Air Liquide Society, Montreal.
PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.
PACKING BOXES
Barchard & Co., Limited, Toronto.
PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.
PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.
PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.
PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.
PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.
PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.
PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
PANELBOARDS
*Crouse-Hinds Co., Ltd., Toronto.
PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.
PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.

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PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.
PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, enamelled blotting
*Provincial Paper Mills, Limited.
PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited Montreal.
PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPERBOARDS
*Canada Boxboard Co., Limited, Montreal, Que.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Staunton, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
Howard Smith Paper Mills, Limited, Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd Montreal.
*Rolland Paper Co., Ltd., Montreal
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Mentreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.
*Harold C. Shipman & Co., Ottawa.
PATENT LITIGATION
Ridout and Maybee, Toronto
*Harold C. Shipman & Co., Ottawa.
PATTERN MAKERS' BRASS DOWEL PINS
*Canadian Winkley Co., Limited, Windsor, Ont.
PAY ROLL AUDITS
*International Business Machines, Limited, Toronto.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co., Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.
PIANO KEYS
The Otto Higel Co., Ltd., Toronto.
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto.
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.
PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.
M. A. Hanna & Co., Toronto.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Anthes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUGS
*Crouse-Hinds Co., Ltd., Toronto.
PLUMBAGO, CRUCIBLES and STOPPER HEADS
Dominion Crucible Co., Limited, Montreal.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
*William R. Perrin, Ltd., Toronto.
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSES, veneer
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSED STEEL AND BRASS GREASE CUPS
*Canadian Winkley Co., Limited, Windsor, Ont.
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
The Mortimer Co., Ltd., Ottawa.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULLEYS, wood split.
*Bernard Industrial Co., Fortierville, P.Q.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
Riordan Sales Co., Ltd., Montreal.
PULP, Unbleached Sulphite.
Riordan Sales Co., Ltd., Montreal.
PULP, sulphate and sulphite.
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited Toronto.
*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London,, Ont.
PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.
PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.
RADIATORS
Taylor-Forbes Co., Limited, Guelph
Warden King, Ltd., Montreal, Que.
RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.
*United Brass & Lead, Ltd., Toronto
RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.
RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.
RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.
RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.
READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.
REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.
RECEPTACLES
*Crouse-Hinds Co., Ltd., Toronto.
REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.
REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.
REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.
REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.
REINFORCEMENT BARS
*Burlington Steel Co., Ltd., Hamilton, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited. Oshawa.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.
RINGS, gold
Caron Bros., Montreal, Que.
RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ROLLING STEEL DOORS
*A. B. Ormsby Co., Ltd., Toronto.
ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.
ROOFING, metal
*The A. B. Ormsby Co., Limited, Toronto.
ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*The Barrett Co., Ltd., Toronto and Montreal.
ROOFINGS, plastic and liquid
*Beveridge Paper Co., Limited, Montreal.

*For Display Advertisement see Index, Page 43

ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.
ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.
RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.
RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.
RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.
RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.
SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.
*McKinnon Industries Limited, St. Catharines, Ont.
SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.
SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal.
SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SANDPAPER
*Delany and Pettit, Ltd., Toronto.
SASH CORD, cotton
Hamilton Cotton Co., Hamilton,
SALT
Canadian Salt Co., Ltd., Windsor,
*Dominion Salt Co., Ltd., Sarnia,
SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.
SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.
SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.
SAWS, cross-cut and band
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWS, circular mill
Shurly & Deitrich, Galt, Ont.
SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.
SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.
SAWS, rip
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.
SCALES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton,
SCALES, counter
The Gurney Scale Co., Hamilton,
SCALES, railway track, etc.
The Gurney Scale Co., Hamilton,
SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris,
Ham & Nott Co., Ltd., Brantford,
SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Stowell Screw Co., Ltd., Montreal.
*United Brass & Lead, Ltd., Toronto
SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.
SECURITIES, engraved
American Bank Note Co., Ottawa,
SERGES
Rosamond Woollen Co., Almonte,
SHAFTING
Canada Forge Co., Ltd., Welland,
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford,
SHAPERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
SHEATHING
*The Barrett Co., Ltd., Toronto and Montreal.
SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.
SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.
*The A. B. Ormsby Co., Limited, Toronto.
SHEETS, ETC.
*Tallhan Brass & Metal Co., Hamilton, Ont.
SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited,
SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.
SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
SHIP BUILDERS
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
SHIRTS
John W. Peck & Co., Ltd., Montreal, Que.
SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.
SHOE PEGWOOD
O. Chalifour, Quebec, Que.
SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.
SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.
SHOOKS
Barchard & Co., Ltd., Montreal.
SIGNAL CELLS
Canadian National Carbon Co., Ltd., Toronto.
SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.
SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.
*Deloro Smelting & Refining Co., Limited, Deloro, Ont.
SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.
SILVERWARE, sterling
Roden Bros., Limited, Toronto.
SINGLETREES
*McKinnon Industries Limited, St. Catharines, Ont.
SINKS, enamelled
Amherst Foundry Co., Limited, Amherst, N.S.
SKATES, figure
Canada Cycle and Motor Co., Ltd.,
SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.
SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.
SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.
SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.
SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
SLEIGHS
Tudhope-Anderson Co., Limited, Orillia, Ont.
SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.
SLOTTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
SMALL METAL STAMPINGS, in quantities
*Canadian Winkley Co., Limited, Windsor, Ont.
SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.
SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
SNAPS, for harness
*McKinnon Industries Limited, St. Catharines, Ont.
SOAPS
J. Barsalou & Co., Ltd., Montreal.
SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.
SOCKETS
*Crouse-Hinds Co., Ltd., Toronto.
SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto.
SODA WATER FOUNTAINS AND ACCESSORIES
Fletcher Mfg. Co., Ltd., Toronto.
SOIL PIPE
Anthes Foundry, Ltd., Toronto.
SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
SOLDER, silver
Geo. H. Lees & Co., Hamilton.
SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.
SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton, Ont.
SNOWSHOES
Holt, Renfrew, Ltd., Quebec, Que.
SPECIAL MACHINERY
*Globe Engineering Co., Limited, Hamilton, Ont.
SPELTER
*Consolidated Mining & Smelting Co. of Canada, Limited, Toronto.
SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.
SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.
SPIRITS
*Hiram Walker & Sons, Limited, Walkerville, Ont.
SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.
SPRAYERS
Spramotor Co., London, Ont.
SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRING SHACKLE BOLTS
*Canadian Winkley Co., Limited, Windsor, Ont.
SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The Bennett & Wright Co., Ltd., Toronto, Ont.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.
SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.
STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.
STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.
STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.
*Wentworth Mfg. Co., Hamilton.
STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STAMP MILLS
*Jenckes Machine Co., Sherbrooke.
STATIONERY, office
Harris Lithographing Co., Toronto.
STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland.
STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.
STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.
STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
*Burlington Steel Co., Ltd., Hamilton, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited, Hamilton.
STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.
STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.
STEEL DOORS, rolling
*The A. B. Ormsby Co., Limited, Toronto.
STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
STEEL PLATE WORK
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Toronto Iron Works, Ltd., Toronto.
STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.
STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The A. B. Ormsby Co., Limited, Toronto.
STEEL SHELVING
*Dennis Wire & Iron Works Co., London.

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STEEL STAMPINGS
Canadian Cartridge Co., Ltd., Hamilton, Ont.
STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.
STEEL WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
STELLITE
*Deloro Smelting & Refining Co., Ltd., Deloro and Toronto.
STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STEPS, for buggies and carriages
*McKinnon Industries Limited, St. Catharines, Ont.
STEREOTYPING
Central Press Agency, Toronto
STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
STONE
The Hagersville Contracting Co., Hagersville, Ont.
STONEWARE
*Jas. W. Foley & Co., St. John, N.B.
STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.
STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.
STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.
STOVES AND RANGES
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.
STRAWS, paper drinking
Fletcher Mfg. Co., Ltd., Toronto.
STRAWBOARD
*Canada Boxboard Co., Limited, Montreal, Que.
STREET LIGHTING FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.
STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
STUMP EXTRACTORS
*The John Whitfield Company, Toronto, Ont.
SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.
SURFACERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES
*Crouse-Hinds Co., Ltd., Toronto.
SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
SWITCH STANDS
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton.
TANKS
*Toronto Iron Works, Ltd., Toronto.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.
TANKS, steel storage
*MacKinnon Steel Co., Limited, Sherbrooke, Que.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.
TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.
TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
TENTS
Turner, J. J., & Sons, Peterboro,
*Scythes & Co., Ltd., Toronto.
TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.
TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.
TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.
TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TIE PLATES, for railways
*McKinnon Industries Limited, St. Catharines, Ont.
TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TIME RECORDERS
*International Business Machines, Limited, Toronto.
TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TOOLS
*The John Whitfield Company, Toronto, Ont.
TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton.
TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton.
TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.
TRACTORS, kerosene and gasoline
*Gilson Manufacturing Co., Ltd., Guelph.
TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.
TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.
TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.

TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.
TRUCKS
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
The Gurney Scale Co., Hamilton.
*Northern Crane Works, Limited, Walkerville.
TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.
TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.
TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.
TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.
TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.
TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.
*Dominion Copper Products Company, Limited, Montreal.
TUBING, Fibre
*Beveridge Paper Co., Limited. Montreal.
TUBING, gold and silver
Canadian Seamless Wire Co., Toronto.
TUBS, Ice cream
Fletcher Mfg. Co., Ltd., Toronto.
TUMBLERS, foundry
*Northern Crane Works, Limited, Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TURBINE PUMPS
*The Goldie & McCulloch Co., Limited, Galt, Ont.
TURPENTINE
*Brown Corporation, La Tuque, Que.
TWEEDS
Rosamond Woollen Co., Almonte, Ont.
TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.
TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.
TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd., Walkerville, Ont

UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.
UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
UNIONS
*Dart Union Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.
VALVES
*Canadian Fairbanks-Morse Company, Ltd., Montreal, Que.
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
T. McAvity & Sons, Ltd., St. John, N.B.
*Penberthy Injector Co., Ltd., Windsor.

VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Mueller Mfg. Co., Ltd., Sarnia.
*Penberthy Injector Co., Ltd., Windsor.
*United Brass & Lead, Ltd., Toronto
James Morrison Brass Mfg. Co., Limited, Toronto.
VALVES, pressure reducing
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, regrinding globe, angle, cross checks, swing checks.
*Mueller Mfg. Co., Ltd., Sarnia.
Penberthy Injector Co., Ltd., Windsor, Ont.
VALVES, regulating
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.
VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt
J. & J. Taylor, Ltd., Toronto.
VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.
VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.
VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
VOLTMETERS AND AMMETERS
*Crouse-Hinds Co., Ltd., Toronto.
WAGONS
TudhopeAnderson Co., Ltd., Orillia.
WAGON HARDWARE
*McKinnon Industries Limited, St. Catharines, Ont.
WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.
WASHERS
*The Steel Company of Canada, Limited, Hamilton.
*United Brass & Lead, Ltd., Toronto
WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.
WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.
WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.
WASTES, wool and cotton
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
WATER METERS
Canadian Cartridge Co., Ltd., Hamilton, Ont.
WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited, Montreal.
*The Barrett Co., Ltd., Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEEL FLANGES
*McKinnon Industries Limited, St. Catharines, Ont.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal, Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton, Ont.

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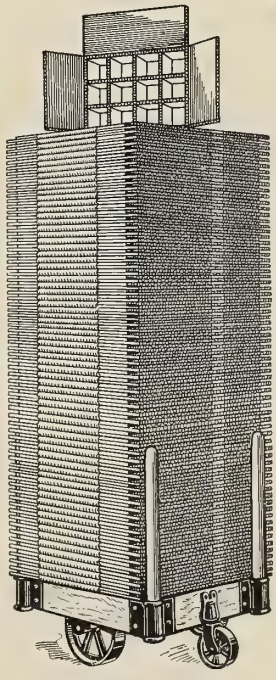
WHEELS, fibre
*Beveridge Paper Co., Limited Montreal.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia. Ont.
WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHIPSOCKETS
*McKinnon Industries Limited, St. Catharines, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont
WHITE LEAD
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal
WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Medicine Hat Pump & Brass Mfg. Co., Medicine Hat, Alta.
WINDOW SHADES
Daly & Morin, Montreal, Que.
WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto

WIRE BALE TIES
*Laidlaw Bale Tie Co., Ltd., Hamilton, Ont.
WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, insulated electric
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE, weatherproof
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd, Hamilton.
WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto. Iron and Brass Goods Works Co., Ltd., Toronto.
WIRING DEVICES
*Crouse-Hinds Co., Ltd., Toronto.
WOOD
Standard Fuel Co., Toronto.
WOOD BORERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
WOOD PRESERVATIVE AND STAIN
*Beveridge Paper Co., Montreal.
WOOD PRINTERS
Barchard & Co., Ltd., Toronto.
WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi Chicoutimi, Que.
WOODBOARD
*Canada Boxboard Co., Limited, Montreal. Que.

WOOD SHOP, general work
*Canadian Rumely Co., Limited, Toronto, Ont.
WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
WOOD STAVE PIPE
T. A. Morrison & Co., Montreal.
WOOL
*H. V. Andrews, Toronto.
WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte.
WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada, Ltd., Niagara Falls, Ont.
WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.
WRENCHES
*McKinnon Industries Limited, St. Catharines, Ont.
WROUGHT IRON PIPE
*The Steel Compony of Canada, Ltd., Hamilton.
WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.
YARNS, cotton
Hamilton Cotton Co., Hamilton.
ZINC, electrical
*The Canada Metal Co., Toronto.

*For Display Advertisement see Index, Page 43



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